

The Department of Public Instruction, Bombay.

BACON

THE ADVANCEMENT OF LEARNING

EDITED FOR INDIAN STUDENTS

BY

F. G. SEEBY, B.A.,

LATE SCHOLAR OF WADHAM COLLEGE, OXFORD, PROFESSOR OF LOGIC AND
MORAL PHILOSOPHY, BECCAN COLLEGE, POONA.

1000 COPIES.

Registered under Act XXV. of 1867.

BOMBAY:
GOVERNMENT CENTRAL BOOK DEPOT.

1882.

[All Rights Reserved.]
Price Rupees 2½.

P R E F A C E.

THIS edition of the *Advancement of Learning* is intended specially for Indian students. As far as the text is concerned, I have treated the book as I should treat a Latin or Greek book, if I were editing one for English students: that is to say, I have tried to give so much explanation of words, idioms, and constructions that the text may be quite intelligible to any student who will take the trouble to use a dictionary. With regard to the matter, I have tried, without presupposing any knowledge of philosophy on the reader's part, to explain Bacon's views, and also to give my own opinion upon their merits. I have in all cases supplemented the incomplete statement of his views given in the *Advancement of Learning* by quotations from the expanded translation of it known as the *De Augmentis Scientiarum*. I hope that students may gather from my notes a fair idea of the general scope and purpose of Bacon's writings; but for a connected account of his writings, and for a general review of his work, I refer them to Professor Fowler's smaller work on Bacon, a book which every student should certainly read. I recommend students also to read Sir Thomas Browne's *Religio Medici*. The passages illustrative of Bacon's writings which it contains are so numerous that it has been impossible for me to quote them.

The books to which I have been most indebted in preparing this edition are Ellis and Spedding's edition of Bacon's works, Professor Fowler's edition of the *Novum Organum*, Mr. Spedding's *Life and Times of Francis Bacon*, and Kuno Fischer's *Bacon und seine Nachfolger*. I have tried in every case to acknowledge the source from which I have borrowed information. The letters. E., J. S., and

W., show that the notes to which they are appended are taken from Mr. Ellis, Mr. Spedding, and Mr. Wright. Lastly, I have to thank the Delegates of the Clarendon Press for their kindness in allowing me to reprint the text of their edition of the *Advancement of Learning*. The only change which I have made is to substitute translations for the original quotations.

THE
FIRST BOOK OF FRANCIS BACON ;
OF THE PROFICIENCY AND
ADVANCEMENT OF LEARNING,
DIVINE AND HUMAN.

Pp. 1—5. *Dedication to the king.* By the law of Moses there were certain daily sacrifices which every Jew was obliged to offer to God : but, besides these, pious individuals might make voluntary offerings according to their ability. In like manner subjects may make voluntary offerings to their sovereign, over and above the services which they owe to him as subjects. Considering the largeness of the king's intellect, his eloquence, and, above all, his great learning, Bacon thinks that he cannot offer him a more appropriate present than a book which shall set forth the dignity of learning, and shall contain an account of what has been already done, and what still remains to be done for the advancement of learning. Such a book will serve as a perpetual testimony to the merits of the king, and the perusal of it will, Bacon hopes, incite the king to take such measures as, in his wisdom, he shall think most fit to promote learning.

James's flatterers used to call him the British Solomon. He was a bad king and wanted the qualities which make a man successful in action ; but he was a man of great natural sagacity, and was eminent for his learning even amongst the learned men of his time. Macaulay talks of him as 'a witty and well-read scholar,' and Lingard praises his 'quickness of apprehension and soundness of judgment,' though he censures him for his self-sufficiency and affectation. Besides the *Basilicon Doron* James wrote a book on the *True Law of Free Monarchy*, and also a treatise on *Daemonology*, in which he claimed to have demonstrated the existence of witches. Bacon refers to these three works in the *Advancement*. To the end of his life James took great interest in theology, which he considered the first of sciences. It is difficult to read Bacon's exaggerated panegyric without a smile. Bacon, however, certainly understood what would please the king better than we can do, and we must attribute his compliments to his earnest desire to attract the attention and obtain the patronage of James. Bacon's great object was to abolish the old learning altogether, and to institute the study of experimental philosophy in its place. This was a project which the king, trained as he was in the old learning, could hardly be expected to favour. But a survey of the existing stock of knowledge, which is given in the *Advancement*, was a necessary preliminary to reform, and might be expected to interest the king very much. Ultimately, no doubt, Bacon hoped to enlist James's sympathy in favour of the larger schemes which he was meditating. See Spedding's *Francis Bacon and his Times*, 1—426. Bacon had also another motive for flattering and conciliating the king. He hoped to obtain from him the promotion for which he had striven with such small success under Elizabeth.

To the King.

1. THERE were under the law, excellent King, both daily sacrifices and freewill offerings; the one proceeding upon ordinary observance,¹ the other upon a devout cheerfulness: in like manner there belongeth to kings from their servants both tribute of duty and presents of affection. In the former of these I hope I shall not live to be wanting, according to my most humble duty, and the good pleasure of your Majesty's employments: for the latter, I thought it more respective² to make choice of some oblation, which might rather refer to the propriety³ and excellency of your individual person, than to the business of your crown and state.

2. Wherefore, representing your Majesty many times unto my mind, and beholding you not with the inquisitive eye of presumption, to discover that which the Scripture telleth me is inscrutable,⁴ but with the observant eye of duty and admiration; leaving aside the other parts of your virtue and fortune, I have been touched, yea, and possessed with an extreme wonder at those your virtues and faculties, which the Philosophers call intellectual; the largeness of your capacity, the faithfulness of your memory, the swiftness of your apprehension, the penetration of your judgement, and the facility and order of your elocution: and I have often thought,⁵ that of all the persons living that I have known, your Majesty were the best instance

¹ Proceeding upon ordinary observance. "These things ye shall do unto the Lord in your set feasts, beside your vows and your freewill offerings."—Numbers xxix. 39.

² Respective, appropriate.

³ Propriety, peculiarity.

⁴ Is inscrutable. Prov. xxv. 3. Cp. Bacon's 19th Essay. "It is a miserable state of mind to have few things to desire and many things to fear. And yet that commonly is the case of kings: who, being at the highest, want matter of desire, which makes their minds more languishing: and have many representations of perils and shadows, which makes their minds the less clear. And this is one reason also of that effect, which the Scripture speaketh of: that the king's heart is inscrutable. For multitude of jealousies and lack of some predominant desire, that should marshall and put in order all the rest, maketh any man's heart hard to find or sound," &c.

⁵ The king learns so readily that, instead of learning something new, he seems to be merely recalling something which he has forgotten. The Platonic doctrine referred to is that our souls have possessed knowledge in a previous state of existence: and that therefore the knowledge which we acquire in this life is not put into us from without. It is latent in the soul, and is recovered

to make a man of Plato's opinion, that all knowledge is but remembrance, and that the mind of man by nature knoweth all things, and hath but her own native and original notions (which by the strangeness and darkness of this tabernacle of the body are sequestered⁶) again revived and restored: such a light of nature I have observed in your Majesty, and such a readiness to take flame and blaze from the least occasion presented, or the least spark of another's knowledge delivered. And as the Scripture saith of the wisest king, *That his heart was as the sands of the sea*⁷; which though it be one of the largest bodies, yet it consisteth of the smallest and finest portions; so hath God given your Majesty a composition of understanding admirable, being able to compass and comprehend the greatest matters, and nevertheless to touch and apprehend the least; whereas it should seem an impossibility in nature, for the same instrument to make itself fit for great and small works. And for your gift of speech, I call to mind what Cornelius Tacitus saith of Augustus Caesar: *Augustus had an easy and fluent way of speaking, such as became a sovereign.* For if we note it well, speech that is uttered with labour and difficulty, or speech that savoureth of the affectation of art and precepts, or speech that is framed after the imitation of some pattern of eloquence, though never so excellent⁸; all this hath somewhat servile, and holding of the subject.⁹ But your Majesty's manner of speech is

by an act of recollection. Cp. the passage in Wordsworth's *Ode on Intimations of Immortality*, beginning—

'Our birth is but a sleep and a forgetting:
The soul that rises with us, our life's star,
Hath had elsewhere its setting,
And cometh from afar.'

The form in which the doctrine is expressed is fanciful, but it contains an important psychological truth. The mind of each individual is not a mere passive receptivity, but a complex of tendencies and aptitudes inherited from preceding generations. The germ of knowledge which exists in the as yet untaught mind is derived not, as Plato thought, from a previous state of the individual, but of the race.

⁶ *Sequestered, obscured.*

⁷ "And God gave Solomon wisdom and understanding exceeding much, and largeness of heart, even as the sand that is on the seashore."—*1 Kings iv. 29.*

⁸ *Though never so excellent, i.e. no matter how excellent it may be.*

⁹ *Holding of the subject, i.e. wanting [in originality. It is opposed to *prince-like* in the following sentence, and means literally 'partaking of the nature of a subject,' i.e. 'not independent.'*

indeed prince-like, flowing as from a fountain, and yet streaming and branching itself into nature's order, full of facility and felicity,¹⁰ imitating none, and inimitable by any. And as in your civil estate¹¹ there appeareth to be an emulation and contention of your Majesty's virtue with your fortune ; a virtuous disposition with a fortunate regiment¹² ; a virtuous expectation (when time was) of your greater fortune,¹³ with a prosperous possession thereof in the due time ; a virtuous observation of the laws of marriage, with most blessed and happy fruit of marriage ; a virtuous and most Christian desire of peace, with a fortunate inclination in your neighbour princes thereunto : so likewise in these intellectual matters, there seemeth to be no less contention between the excellency of your Majesty's gifts of nature and the universality and perfection of your learning. For I am well assured that this which I shall say is no amplification at all, but a positive and measured truth ; which is, that there hath not been since Christ's time any king or temporal¹⁴ monarch, which hath been so learned in all literature and erudition, divine and human. For let a man seriously and diligently revolve¹⁵ and peruse the succession of the emperors of Rome, of which Cæsar the Dictator, who lived some years before Christ, and Marcus Antoninus were the best learned ; and so descend to the emperors of Grecia, or of the West, and then to the lines of France, Spain, England, Scotland, and the rest, and he shall find this judgement is truly made. For it seemeth much in a king, if, by the compendious extractions of other men's wits and labours, he can take hold of any superficial ornaments and shows of learning ; or if he countenance and prefer learning and learned men : but to drink indeed of the true fountains of learning, nay, to have such a fountain of learning in himself, in a king, and in a king born, is almost a miracle. And the more, because there is met in your Majesty a rare conjunction, as well

¹⁰ Felicity : we still use the phrase "a happy expression," to denote one which is peculiarly appropriate to express the thing intended.

¹¹ Just as in your political and domestic life your virtues have been as eminent as the high position to which you were born, so, in intellectual matters, the knowledge which you have acquired is not less remarkable than the faculties, with which you were, by nature, endowed. Estate, position.

¹² Regiment, education.

¹³ Your greater fortune, i.e. the possession of the English crown.

¹⁴ Temporal, opposed to ecclesiastical.

¹⁵ Revolve, reflect upon. By *Rome* Bacon means the Roman Empire before it was divided. By *Grecia* he means the Eastern half of the original Empire, of which Constantinople was the capital. The capital of the *West* was *Rome*.

of divine and sacred literature, as of profane and human; so as¹⁶ your Majesty standeth invested of that triplicity, which in great veneration was ascribed to the ancient Hermes¹⁷; the power and fortune of a king, the knowledge and illumination of a priest, and the learning and universality of a philosopher. This propriety¹⁸ inherent and individual attribute in your Majesty deserveth to be expressed not only in the fame and admiration of the present time, nor in the history or tradition of the ages succeeding, but also in some solid work, fixed memorial, and immortal monument, bearing a character¹⁹ or signature both of the power of a king and the difference and perfection of such a king.

3. Therefore I did conclude with myself, that I could not make unto your Majesty a better oblation than of some treatise tending to that end, whereof the sum will consist of these two parts; the former concerning the excellency of learning and knowledge, and the excellency of the merit and true glory in the augmentation and propagation thereof: the latter, what the particular acts and works are, which have been embraced and undertaken for the advancement of learning; and again, what defects and undervalues²⁰ I find in such particular acts: to the end that though I cannot positively or affirmatively advise your Majesty, or propound unto you framed particulars, yet I may excite your princely cogitations to visit the excellent treasure of your own mind, and thence to extract particulars for this purpose, agreeable to your magnanimity and wisdom.

¹⁶ So as, so that. The phrase occurs repeatedly in the text, and always in this sense.

¹⁷ *Hermes*, said to have been a great philosopher, king, and priest of Egypt. But the real Hermes, or the writer of the works ascribed to him, was a neophyte Platonist of the second or third century. E. The name, according to Church, was given to a vast series of writings on theology, philosophy, and nature which appear to have grown up in Egypt from the 2nd century onwards, and which, embodying Jewish and Christian, as well as Eastern, Greek, and Egyptian ideas, were probably intended as a body of literature antagonistic to Christianity, giving to philosophy the attraction of a religious and inspired character.

¹⁸ *Propriety*, p. 2. n. 3.

¹⁹ *Character* or *signature*, i.e. a stamp or impression. The word 'character' is here used in its literal sense, to denote, 'an impression.' The Queen's head on a coin is properly called 'a character.' Shakspeare uses 'to character,' for 'to impress.'

And these few precepts in thy memory
See thou character. *Hamlet*, 1.3.57.

²⁰ *Undervalues*, i.e. shortcomings.

I. pp. 6—14. Before proceeding to set forth the dignity of learning, Bacon wishes to clear the way by showing that the objections which have been raised against learning are based upon ignorance. He deals first with the objections raised by theologians.

Theologians quote Scripture to prove that the desire of knowledge was the cause of original sin, that it puffs up the mind, as the serpent's poison causes the body to swell, and that it is productive only of anxiety. They assert, moreover, that knowledge draws men away from God. In reply Bacon says that it was not the knowledge of the properties of natural objects which was the cause of the fall, but the desire of man to learn the distinction between good and evil with a view to emancipating himself from the divine authority, and becoming a law to himself. As for knowledge puffing up the mind, there is, in reality, no subject which is too great for the mind, except God himself. Bacon quotes Scripture to prove that the human mind is so constituted as to be capable of attaining to the knowledge of all phenomena, and of the laws of their operation. If certain accidental hindrances were removed, the mind might even attain to the knowledge of the 'summary law of nature.' *It is never by knowledge that the mind is corrupted, but by a wrong use of knowledge.* Knowledge is to be used to improve the condition of men, not to flatter our own vanity, nor to raise extravagant hopes and fears, nor to lead us to attempt to understand God, who is incomprehensible. If these cautions be observed, knowledge is an unmixed good. In reply to the assertion that knowledge draws men away from God, Bacon says that the truths of science are indisputable, and that therefore the cause of true religion cannot be served by denying them: (*will you lie for God to gratify him?*) and, as a matter of fact, the wider and more profound a man's knowledge is, the deeper will be his conviction of the truths of religion. Cp. Bk. 2. vii. 6.

In this passage Bacon gives his conception of the *scope* and *object* of science. The scope of science is 'nature and universality': i.e. a complete understanding of all natural phenomena.

The object of science, as he says elsewhere, is the glory of God, and the relief of man's estate.

I. I. IN the entrance to the former of these,²¹ to clear the way, and as it were to make silence, to have the true testimonies concerning the dignity of learning to be better heard, without the interruption of tacit objections; I think good to deliver it from the discredits and disgraces which it hath received, all from ignorance; but ignorance severally disguised;²² appearing sometimes in the zeal and jealousy of divines; sometimes in the severity and arrogancy of

²¹ *The former of these*, i.e. the first half of the present treatise: see p. 5. § 3.

²² *Ignorance severally disguised*, i.e. concealing itself under different forms, such, for example, as zeal for religion or for the state.

politiques;²³ and sometimes in the errors and imperfections of learned men themselves.

2. I hear the former sort say, that knowledge is of²⁴ those things which are to be accepted of with great limitation and caution: that the aspiring to overmuch knowledge was the original temptation and sin whereupon ensued the fall of man: that knowledge hath in it somewhat of the serpent, and therefore where it entereth into a man it makes him swell; *Knowledge puffeth up*: that Salomon gives a censure,²⁵ *That there is no end of making books, and that much reading is weariness of the flesh*; and again in another place, *That in spacious knowledge there is much contristation, and that he that increaseth knowledge increaseth anxiety*: that Saint Paul gives a caveat,²⁶ *That we be not spoiled through vain philosophy*: that experience demonstrates how learned men have been arch-heretics,²⁷ how learned times have been inclined to atheism, and how the contemplation of second causes²⁸ doth derogate from our dependence upon God, who is the first cause.

3. To discover then the ignorance and error of this opinion, and the misunderstanding in the grounds thereof, it may well appear these men do not observe or consider that it was not the pure knowledge of nature and universality, a knowledge by the light whereof man did give names unto other creatures in Paradise,²⁹ as they were brought before him, according unto their proprieties,³⁰ which gave the occasion to the fall: but it was³¹ the proud knowledge of good and

²³ *Politiques*, politicians.

²⁴ Is of, i.e. is one of.

²⁵ A censure, an opinion. *Ecclesiast. xii. 12. and i. 18.*

²⁶ A caveat, a warning. *Coloss. ii. 8.*

²⁷ Amongst the causes of Atheism, Bacon, in his 16th Essay, mentions "Learned times, specially with peace and prosperity: for troubles and adversities do more bow men's minds to religion."

²⁸ Second causes, what we call 'physical causes.' The attraction of the earth is the second or physical cause of an unsupported body falling to the ground. Second causes are opposed to the first or efficient cause, viz., God. Cp. p. 13.

²⁹ Cp. vi. 6. The argument is that Adam knew the nature and properties of all creatures, because, in the garden of Eden, he gave them names, and names express the properties of the things named. Ellis quotes the same argument from the writings of Thomas Aquinas.

³⁰ Proprieties, properties.

³¹ The tree of knowledge of good and evil stood in the midst of the garden of Eden, and man was forbidden to taste the fruit of it, on pain of death. See vi. 6. n. 13.

evil, with an intent in man to give law unto himself, and to depend no more upon God's commandments, which was the form of the temptation. Neither is it any quantity of knowledge, how great soever, that can make the mind of man to swell; for nothing can fill, much less extend the soul of man, but God and the contemplation of God; and therefore Salomon, speaking of the two principal senses of inquisition,³² the eye and the ear, affirmeth that *the eye is never satisfied with seeing, nor the ear with hearing*; and if there be no fulness, then is the continent³³ greater than the content: so of knowledge itself, and the mind of man, whereto the senses are but reporters, he defineth likewise in these words, placed after that Kalendar or Ephemerides³⁴ which he maketh of the diversities of times and seasons for all actions and purposes; and concludeth thus: *God hath made all things beautiful, or decent, in the true return of their seasons:*³⁵ *Also he hath placed the world in man's heart, yet cannot man find out the work which God worketh from the beginning to the end:* declaring not obscurely, that God hath framed the mind of man as a mirror or glass capable of the image of the universal world, and joyful to receive the impression thereof, as the eye joyeth to receive light; and not

³² *Principal senses of inquisition*, i.e. the senses which are of most use to us in acquiring knowledge. The senses supply the mind with the objects of thought: they are 'reporters to the mind.' Cp. "Our senses, conversant about particular sensible objects, do convey into the mind several distinct perceptions of things, according to those various ways in which those objects do affect them."—*Locke's Essay*, Bk. 2, ch. 1. The objects of sight and hearing, colours and sounds, are those which we first apprehend, and which are most frequently presented to us. For the quotation, see *Ecclesiast.* i. 8.

³³ *The continent*, that which contains.

³⁴ *Ephemerides*, a Calendar. It is a Greek word exactly equivalent to our 'diary.'

³⁵ *In the true return of their seasons*, i.e. each at its proper time, *the work which God worketh from the beginning to the end*, Bacon often uses this phrase to denote the law on which the primary qualities of matter ultimately depend. In all our inquiries we must start with matter existing, and possessed of its primitive qualities. But on what do these primary qualities depend? What is the law of 'the force implanted by God in these first particles, from the multiplication whereof all the variety of things proceeds and is made up?' Here, as elsewhere, he leaves it doubtful whether this question can ever be answered. Cp. Bk. 2. vii. 6, and see *On Principles and Origins*, Ellis and Spedding's Edn., Vol. 5, p. 461. He calls this law 'the work which God worketh from the beginning to the end,' because the whole series of natural phenomena results from it.

only delighted in beholding the variety of things and vicissitude of times, but raised also to find out and discern the ordinances and decrees,³⁶ which throughout all those changes are infallibly observed. And although he doth insinuate that the supreme or summary law of nature, which he calleth *The work which God worketh from the beginning to the end*, is not possible to be found out by man; yet that doth not derogate from the capacity of the mind but may be referred to the impediments, as of shortness of life, ill conjunction of labours, ill tradition³⁷ of knowledge over from hand to hand, and many other inconveniences, whereunto the condition of man is subject. For that nothing parcel of³⁸ the world is denied to man's inquiry and invention, he doth in another place rule over, when he saith, *The spirit of man is as the lamp of God, wherewith he searcheth the inwardness of all secrets.* If then such be the capacity and receipt³⁹ of the mind of man, it is manifest that there is no danger at all in the proportion or quantity of knowledge, how large soever, lest it should make it swell or out-compass itself⁴⁰; no, but it is merely the quality of knowledge, which, be it in quantity more or less, if it be taken without the true corrective thereof, hath in it some nature of venom or malignity,⁴¹ and some effects of that venom, which is ventosity or swelling. This corrective spice, the mixture whereof maketh knowledge so sovereign, is charity,⁴² which the Apostle immediately addeth to the former clause: for so he saith, *Knowledge bloweth up, but charity buildeth up;* not unlike unto that which he delivereth in another place: *If I speake, saith he, with the tongues of men and angels, and had not charity, it were but as a tinkling cymbal;* not but that it is an excellent thing to speak with the tongues of men and angels, but because, if it be severed from charity, and not referred to the good of men and mankind, it hath rather a sounding and unworthy glory, than a meriting and substantial virtue. And as for that censure⁴³ of Salomon, concerning the excess of writing and reading books, and the anxiety of spirit which

³⁶ *Ordinances and decrees*, i.e. the laws of nature. *Ecclesiast.* iii. 11.

³⁷ *Tradition*, The word is used, as Bacon generally uses it, in its literal sense of 'delivery,' or 'communication.'

³⁸ *Nothing parcel of*, i.e. no part of. *He doth rule over*, He decides.

³⁹ *Receipt*, capacity.

⁴⁰ *Outcompass itself*, exceed its proper limits.

⁴¹ *Malignity*, injurious property.

⁴² *Charity*, defined below, as the habit of referring everything to the good of men and mankind. *I Corin.* xiii. 1.

⁴³ *Censure*, p. 7. n. 25.

redoundeth from knowledge; and that admonition of Saint Paul, *That we be not seduced by vain philosophy*; let those places be rightly understood, and they do indeed excellently set forth the true bounds and limitations, whereby human knowledge is confined and circumscribed; and yet without any such contracting or coarctation, but that it may comprehend⁴⁴ all the universal nature of things; for these limitations are three: the first, *That we do not so place our felicity in knowledge, as we forget our mortality*: the second, *That we make application of our knowledge, to give ourselves repose and contentment, and not distaste or repining*: the third, *That we do not presume by the contemplation of nature to attain to the mysteries of God*. For as touching the first of these, Salomon doth excellently expound himself in another place of the same book, where he saith: *I saw well that knowledge recedeth as far from ignorance as light doth from darkness; and that the wise man's eyes keep watch in his head, whereas the fool roundeth about⁴⁵ in darkness: but withal I learned, that the same mortality involveth them both.⁴⁶* And for the second, certain it is, there is no vexation or anxiety of mind which resulteth from knowledge otherwise than merely by accident; for all knowledge and wonder⁴⁷ (which is the seed of knowledge) is an impression of pleasure in itself: but when men fall to framing conclusions out of their knowledge, applying it to their particular,⁴⁸ and ministering to themselves therby weak fears or vast desires, there groweth that carefulness⁴⁹ and trouble of mind which is spoken of: for then knowledge is no more *a dry*⁵⁰

⁴⁴ *But that it may comprehend*, i.e. as would prevent it from comprehending

⁴⁵ *Roundeth about*, wanders about. *Ecclesiast. ii. 13, 14.*

⁴⁶ *The same mortality involveth them both.* Here, and above in l. 7, Bacon means to say that we must not become such slaves to any pleasure that the renunciation of it at the time of death will be painful. Any pursuit, however pleasurable, will become painful, if we are constantly distressing ourselves with the thought that, at some time or other, we shall have to abandon it. The wise man and the fool must alike submit to the conditions of human existence. But the wise man will not undertake more than he can hope to accomplish within the limits of a life-time. Instead of repining at the shortness of life, he will show his wisdom in making a good use of it.

⁴⁷ *Wonder.* Aristotle says that it was wonder which first led men to seek for knowledge: and Plato says, " Wonder is the feeling of a philosopher, and philosophy begins in wonder."

⁴⁸ *Their particular*, their own condition.

⁴⁹ *Carefulness*, anxiety.

⁵⁰ Plutarch mentions the opinion of Heraclitus that 'the wisest mind is like a dry light': and Bacon elsewhere says, " Heraclitus the Obscure said:

light, whereof Heraclitus the profound said, ‘*A dry light is the best soul*’; but it becometh *a light wet*, or *softened by steeping*, being steeped and infused in the humours of the affections. And as for the third point, it deserveth to be a little stood upon,⁵¹ and not to be lightly passed over: for if any man shall think by view and inquiry into these sensible and material things to attain that light, whereby he may reveal unto himself the nature or will of God, then indeed is he spoiled by vain philosophy: for the contemplation of God’s creatures and works produceth (having regard to the works and creatures themselves) knowledge, but having regard to God, no perfect knowledge, but wonder, which is broken⁵² knowledge. And therefore⁵³ it was most

“*The dry light was the best soul*: meaning, when the faculties intellectual are “in vigour, not wet, nor, as it were, blooded by the affections.” In the 27th Essay too Bacon says, “Heraclitus saith well in one of his Enigmas; *Dry light is ever the best*. And certain it is that the light that a man receiveth by “counsel from another is *drier* and purer than that which cometh from his “own understanding and judgment, which is ever infused and drenched in his “affections and customs.” The word *dry* is used in the sense of ‘clear’ or ‘pure.’ The meaning of the passage will be best understood by comparing it with the 49th Aphorism of the first book of the *Novum Organum*, in which Bacon says, “The mind of man is not like a dry light, but it receives from the will and “affections a taint which produces capricious or arbitrary sciences: for what “a man wishes to be true, that he is inclined to believe to be true.” In working out an arithmetical problem, we are not likely to be swayed by passion, but in the study of economical, or political, or theological doctrine we are very apt to be biassed, and to start with preconceived opinions which make us overlook or misinterpret evidence, and so vitiate our conclusions.

⁵¹ *Stood upon*, dwelt upon.

⁵² *Broken*, incomplete. Cp. *abrupt*, Bk. 2. xxv. 13. n. 4.

⁵³ One of Plato’s school, Philo Judaeus. The more we study nature, the more we see that the human intellect cannot attain to the knowledge of God. If therefore men try to arrive at such knowledge, their conclusions are sure to be heretical, i.e. at variance with the teaching of Revelation, which is the only source of knowledge as to the divine character. Bacon frequently insists in his writings, on the necessity of keeping theology and science separate: see Bk. 2. vi. 1. and xxv. In the 65th Aphorism of the first book of the *Novum Organum*, he says, “An ill-advised admixture of things human and “divine produces a fantastical philosophy, and an heretical religion.” In his 17th Essay he mentions amongst the causes of superstition “the taking an aim “at divine matters by human, which cannot but breed mixture of imagina-“tions.” We may here briefly consider what Bacon’s attitude towards religion was. He says in the text that the more we study nature, and see how law and harmony regulate its apparent diversity, the more convinced we become of the existence of a God, who put in motion originally, and who still controls

aptly said by one of Plato's school, *That the sense of man carrieth a resemblance with the sun, which (as we see) openeth and revealeth*

the vast machinery of the system. In his 16th Essay he says, "I had rather believe all the fables in the Legend, (a book containing the Lives of the Saints) and the Talmud, and the Alcoran than that this Universal Frame is without a mind. . . . It is true that a little philosophy inclineth man's mind to atheism: but depth in philosophy bringeth men's minds about to religion: for while the mind of man looketh upon second causes scattered, it may sometimes rest in them and go no further. *But when it beholdeth the chain of them confederate and linked together, it must needs fly to providence and deity.*" See below, vi. 16. Bacon, then, certainly believed in the existence of God, and in the government of the world by divine providence. These he regarded as truths established by natural religion. Natural religion, then, according to Bacon, falls within, and is demonstrated by philosophy. Bacon's attitude towards *theology* or dogmatic religion, as opposed to natural religion, may be summed up in the one word *indifference*. Theology, Bacon says, does not come within the sphere of philosophy. Theology rests simply on faith: its dogmas are not to be tested or criticised by reason, nor to be rejected if they are repugnant to reason (see Bk. 2. xxv. 1.). If Bacon had been asked why he believed in the Christian theology, he would have replied because it is contained in the Bible. He did not ask whether the Bible was worthy of credit, nor did he care to co-ordinate his theological with his other beliefs. He was too much interested in science to devote his time to theology. He lived in an age of violent theological discussion, but took neither part nor interest in it. Theological discussions are, he says, for the most part frivolous, and unfruitful. Unity as to the essentials of religion is all that is necessary. (See Essay 3.) He would have allowed perfect freedom of judgment, limited only by the positive declarations of Scripture. He accepted the doctrines of Christianity, but his was rather a belief of the lips than of the heart: and he was always more interested in the moral than in the doctrinal side of Christianity. (See Macaulay's Essay on Bacon.) Bacon's position was not altogether a logical one, but it is easily explained. Firstly, as noticed above, he was so interested in science that he was content simply to accept theology as resting on evidence of its own, without caring to examine the evidence. Secondly, Bacon was a child of the Reformation, the central principle of which was the supremacy of reason. Had Bacon lived later, when the abstract difficulty of reconciling faith with reason was more completely realised, he might have been a sceptic. Thirdly, a historical criticism of the sacred books of the Christians was not taken up until after his time. The scepticism, which is latent in the Baconian separation of theology and science, was developed by his successors. Lastly, in an age when scientific inquirers were being condemned by the church to imprisonment and death, it was of the first importance to show the absurdity of trying to control scientific inquiry. The task of reconciling its results to ecclesiastical dogmas might be left to theologians.

all the terrestrial globe ; but then again it obscureth and concealeth the stars and celestial globe ; so doth the sense discover natural things, but it darkeneth and shutteth up divine. And hence it is true that it hath proceeded, that divers great learned men have been heretical whilst they have sought to fly up to the secrets of the Deity by the waxen wings of the senses.⁵⁴ And as for the conceit that too much knowledge should incline a man to atheism, and that the ignorance of second causes should make a more devout dependence upon God, which is the first cause ; first it is good to ask the question which Job asked of his friends : *Will you lie for God, as one man will do for another, to gratify him ?* For certain it is that God worketh nothing in nature but by second causes : and if they would have it otherwise believed it is mere imposture, as it were in favour towards God ; and nothing else but to offer to the author of truth the unclean sacrifice of a lie. But further, it is an assured truth, and a conclusion of experience, that a little or superficial knowledge of philosophy may incline the mind of man to atheism, but a further proceeding therein doth bring the mind back again to religion. For in the entrance of philosophy, when the second causes which are next unto the senses, do offer themselves to the mind of man, if it dwell and stay there it may induce some oblivion of the highest cause ; but when a man passeth on further, and seeth the dependence of causes, and the works of Providence, then, according to the allegory of the poets, he will easily believe that the highest link⁵⁵ of nature's chain must needs be tied to the foot of Jupiter's chair. To conclude therefore, let no man⁵⁶ upon a weak conceit of sobriety or an ill-applied moderation think or maintain, that a man can search too far, or be too well studied in

⁵⁴ By the waxen wings of the senses, referring to the legend of Icarus, who attempted to fly from Crete on wings made of wax. He flew too near the sun : his wings melted, and he fell into the sea, and was drowned. The senses are as incapable of penetrating the divine mysteries, as the wings of Icarus were of carrying him though the air. Ib., *the conceit*, the idea. The word is used in this sense throughout the book.

⁵⁵ The highest link, &c., an allegorical interpretation of a passage in Homer, in which Jupiter says 'that if all the gods and goddesses were to pull at a golden chain hung from earth to heaven, they could not drag him down, but that he could drag them up, together with earth and sea, and suspend all in mid air.' Cp. Bk. 2. vi. 1. Bacon means that the series of natural phenomena is directed by God.

⁵⁶ Let no man, &c. Let no one, under the foolish impression that he is restraining his inquiries within proper limits, or impelled by a mistaken moderation, &c.

the book of God's word,⁵⁷ or in the book of God's works, divinity or philosophy ; but rather let men endeavour an endless progress or proficience in both ; only let men beware that they apply both to charity,⁵⁸ and not to swelling ; to use, and not to ostentation ; and again, that they do not unwisely mingle or confound these learnings together.

II. Pp. 15—24. Bacon now proceeds to refute the objections which have been raised against learning by statesmen.

Statesmen quote authorities to show that learning enervates : that it induces habits of mind and body which unfit men for business : and that the habit of discussion is fatal to the habit of obedience. Bacon in reply says that these three objections are based on exceptional instances, which can easily be explained. As a matter of fact, learning does not enervate : history proves that the same individual may be both a good scholar, and a brave and skilful general. History too confirms the natural expectation that the ages, which have been most distinguished for learning, would also be most distinguished for skill in the arts of war and government. As for the second objection, it is absurd to say that learning unfits men for the work of governing. An ignorant statesman is a mere empiric, no more to be trusted than a quack doctor. The most successful governments have been those which have been directed by learned men. Learned men may have their weaknesses, but from their knowledge of history they must have learned the essential principles of real statesmanship. Learned men are likely to be the most indefatigable in business, and to be the only ones who will take it up for its own sake. The intervals of study will afford leisure for work. A learned man may occasionally be slothful : but that is not because he is learned. All ignorant men are not active. Lastly learned men make the best citizens, because they see the necessity of obedience, and therefore yield it willingly. It is in barbarous communities that the task of governing is most difficult. Cp. the end of Article III. in Book v. ch. I. of Adam Smith's *Wealth of Nations*. With the whole of this passage cp. vii. 3—30.

The field of knowledge has so widened since the time of Bacon that, at the present day, no one can become 'learned' without devoting his life to study. Speaking of the age of Bacon, Macaulay says, "The great productions of 'Athenian and Roman genius were the intellectual all of our ancestors. They 'are but a part of our treasures.' (Essay on Bacon.) Moreover, the duties of government have so increased in extent and complexity that the work even of a single minister, in a large state, leaves little or no leisure for study. Bacon himself sometimes found it difficult to reconcile the claims of philosophy and public duty. In the 11th Essay he says, 'Certainly men in great fortunes are 'strangers to themselves and, while they are in the puzzle of business, they 'have no time to tend their health, either of body or mind.'

If due allowance be made for this change, Bacon's remarks are true. By

⁵⁷ The book of God's word is the Bible : the book of God's works is nature.

⁵⁸ Charity, p. 9. n. 42.

learning Bacon intends chiefly a knowledge of history, or rather of what we should call the philosophy of history. This must always be essential to the statesman and the soldier. The substance of the passage is that, other things being equal, all arts, and therefore the arts of government and war amongst the rest, will be practised with greater success by those who have had a scientific training, than by mere empirics. A quack doctor, who by a given remedy has cured a fever, *may* cure another by the same remedy, if the two cases happen to be exactly alike, but a man trained in the principles of medicine, who knows how and why his medicines act, will be able to adjust his remedies to different constitutions and to different forms of the same disease. Similarly a mere empiric *may* hit upon a tax which will be productive, and which will be paid willingly: a scientific statesman will be able to make a rational and trustworthy forecast. Cp. *Essay xii.* "So are there mountebanks for the politique "body; men that undertake great cures, and perhaps have been lucky in two or "three experiments, but want the grounds of science, and therefore cannot "hold out." It is needless now to point out that the progress of science has made a scientific training essential to success in the art of war.

II. I. And as for the disgraces which learning receiveth from politiques,⁵⁹ they be of this nature; that learning doth soften men's minds, and makes them more unapt for the honour and exercise of arms; that it doth mar and pervert men's dispositions for matter of government and policy, in making them too curious⁶⁰ and irresolute by variety of reading, or too peremptory⁶¹ or positive by strictness of rules and axioms, or too immoderate⁶² and overweening by reason of

⁵⁹ *Politiques*, p. 7. n. 23.

⁶⁰ *Curious*, careful, with this passage cp. p. 20. 4 seqq., where the objections here raised are answered. If their knowledge of history suggests to them so many courses of action that they are puzzled which to choose, yet it teaches them when further hesitation is dangerous, and at the same time enables them to act on a reasonable principle, when they do act.

⁶¹ *Too peremptory*, obstinate. It is said that learned men adhere too strictly to rigid rules and principles, from which, in practice, deviations are often required. For instance, it is often said that 'modified free trade' is expedient for some countries: 'a learned statesman' might enforce pure free trade everywhere. Bacon says in reply (p. 20.) that the learned man alone knows when a theory is proved, and when it is not: and within what limits, and under what circumstances exceptions to a rule are reasonable.

⁶² *Too immoderate, &c.* It is said that learned men will aim presumptuously at equalling the greatness of the most celebrated men of whom they have read in history: or that they will simply imitate the past, forgetting that what is possible in one age is impossible in another. In reply to this Bacon says (p. 20.) that only ignorant men will regard every historical personage as a model to be imitated, and every historical event as a precedent to be followed.

the greatness of examples, or too incompatible⁶³ and differing from the times by reason of the dissimilitude of examples; or at least, that it doth divert men's travails from action and business; and bringeth them to a love of leisure and privateness; and that it cloth bring into states a relaxation of discipline, whilst every man is more ready to argue than to obey and execute. Out of this conceit,⁶⁴ Cato, surnamed the Censor, one of the wisest men indeed that ever lived, when Carneades,⁶⁵ the philosopher, came in embassage to Rome, and that⁶⁶ the young men of Rome began to flock about him, being allured with the sweetness and majesty of his eloquence and learning, gave counsel in open senate that they should give him his dispatch with all speed, lest he should infect and enchant the minds and affections of the youth, and at unawares⁶⁷ bring in an alteration of the manners and customs of the state. Out of the same conceit or humour did Virgil, turning his pen to the advantage of his country, and the disadvantage of his own profession, make a kind of separation between policy and government, and between⁶⁸ arts and sciences, in the verses so much renowned, attributing and challenging⁶⁹ the one to the Romans, and leaving and yielding the other to the Grecians: *Be it thy task, O Roman, to rule over subject peoples.* So likewise we see that Anytus, the accuser of Socrates, laid it as an article of charge and accusation against him, that he did with the variety and power of his discourses and disputations, withdraw young men from due reverence to the laws and customs of their country, and that he did profess a dangerous and pernicious science, which was to make the worse matter seem the better,⁷⁰ and to suppress truth by force of eloquence and speech.

2. But these and the like imputations have rather a countenance⁷¹

⁶³ Incompatible, not suited to the times in which they live.

⁶⁴ Conceit, p. 13, n. 54.

⁶⁵ In the year 135 b. c. the Athenians sent an embassy to Rome to ask for the remission of a fine which had been imposed on their city. Carneades, a philosopher of the sceptical school, was one of the envoys.

⁶⁶ That, redundant.

⁶⁷ At unawares, we should omit 'at.'

⁶⁸ The second *between* is superfluous. The meaning is, 'between policy and government on the one hand, and arts and sciences on the other.'

⁶⁹ Challenging, claiming. *Aen.* vi. 852.

⁷⁰ To make the worse matter seem the better, i.e. to employ sophistical arguments in defence of a bad cause. Socrates was tried and condemned *a. d.* 399.

⁷¹ Countenance, appearance.

of gravity than any ground of justice: for experience doth warrant, that both in persons and in times there hath been a meeting and concurrence in learning and arms, flourishing and excelling in the same men and the same ages. For⁷² as for men, there cannot be a better nor the like⁷³ instance, as of that pair, Alexander the Great and Julius Caesar the Dictator; whereof the one was Aristotle's scholar in philosophy, and the other was Cicero's rival in eloquence: or if any man had rather call for scholars that were great generals, than generals that were great scholars, let him take Epaminondas the Theban, or Xenophon the Athenian; whereof the one was the first that abated the power of Sparta, and the other was the first that made way to the overthrow of the monarchy of Persia. And this concurrence⁷⁴ is yet more visible in times than in persons, by how much an age is a greater object than a man. For both in Egypt, Assyria, Persia, Grecia, and Rome, the same times that are most renowned for arms, are likewise most admired for learning; so that the greatest authors and philosophers and the greatest captains and governors have lived in the same ages. Neither can it otherwise be: for as in man the ripeness of strength of the body and mind cometh much about an age, save that the strength of the body cometh somewhat the more early, so in states, arms and learning, whereof the one correspondeth to the body, the other to the soul of man, have a concurrence or near sequence in times.

3. And for matter of policy and government, that learning should rather hurt, than enable thereunto, is a thing very improbable: we see it is accounted an error to commit a natural body to empiric physicians, which commonly have a few pleasing⁷⁵ receipts whereupon they are confident and adventurous, but know neither the causes of diseases, nor the complexions⁷⁶ of patients, nor peril of accidents,⁷⁷ nor the true method of cures: we see it is a like error to rely upon advocates or lawyers, which are only men of practice⁷⁸ and not grounded in

⁷² *The like instance, i.e. so good an instance.*

⁷³ Cp. Gibbon, ch. x. "In the most polite and powerful nations, genius of every kind has displayed itself about the same period: and the age of science has generally been the age of military virtue and success."

⁷⁴ *Pleasing, i.e. with which the empirics themselves are satisfied. Receipts.* prescriptions.

⁷⁵ *Complexions, constitutions.*

⁷⁶ *Accidents, symptoms.*

⁷⁷ *Men of practice, whose knowledge is derived simply from their own experience, and who know nothing of the principles of law.*

their books, who are many times easily surprised when matter falleth out⁷⁸ besides their experience, to the prejudice of the causes they handle, so by like reason⁷⁹ it cannot be but a matter of doubtful consequence if states be managed by empiric statesmen, not well mingled with men grounded in learning. But contrariwise,⁸⁰ it is almost without instance contradictory that ever any government was disastrous that was in the hands of learned governors. For howsoever it hath been ordinary with politique men⁸¹ to extenuate and disable⁸² learned men by the names of *pedantes*; yet in the records of time it appeareth in many particulars⁸³ that the governments of princes in minority (notwithstanding the infinite disadvantage of that kind of state) have nevertheless excelled the government of princes of mature age, even for that reason which they seek to traduce,⁸⁴ which is, that by that occasion the state hath been in the hands of *pedantes*: for so was the state of Rome for the first five years, which are so much magnified, during the minority of Nero, in the hands of Seneca a *pedanti*:⁸⁵ so it was again, for ten years' space or more, during the minority of Gordianus the younger, with great applause and contention⁸⁶ in the

⁷⁸ Falleth out, happens.

⁷⁹ So by like reason, &c. cp. Essay 50. "The chief use of studies for ability is, "in the judgment and disposition of business. For expert men can execute, and "perhaps judge of particulars, one by one: but the general counsels, and the plots "and marshalling of affairs come best from those that are learned. . . . To judge "wholly by their rules is the humour of a scholar. . . . Studies themselves do give "forth directions too much at large, except they be bounded in by experience."

⁸⁰ Contrariwise, on the other hand. A learned man is not *necessarily* a good governor, as we see in the case of James himself. "James, though an able "man, was a weak monarch. His quickness of apprehension and soundness "of judgment were marred by his credulity and partialities, his childish fears, "and habit of vacillation. Eminently qualified to advise as a counsellor, he "wanted the spirit and resolution to act as a sovereign. His discourse teemed "with maxims of political wisdom, his conduct frequently bore the impress "of political imbecility."—Lingard, vol. vii., p. 139.

⁸¹ Politique men, politiques, p. 6. n. 23.

⁸² Disable, to disparage.

⁸³ Particulars, instances.

⁸⁴ Traduce, to ridicule. By that occasion, at that time.

⁸⁵ A *pedanti*, a tutor. Bacon uses the Italian form. For the influence of Seneca over Nero, see Merivale's Roman Empire, vol. vi., p. 273.

⁸⁶ Contention, satisfaction. Gordian died at the age of nineteen. Gibbon says of Misitheus, who was Gordian's father-in-law, that his 'wise counsels had no object except the glory of his sovereign and the happiness of the people.' Ch. vii.

hands of Misitheus a *pedanti*: so was it before that, in the minority of Alexander Severus, in like happiness, in hands not much unlike, by reason of the rule of the women,⁸⁷ who were aided by the teachers and preceptors. Nay, let a man look into the government of the bishops of Rome, as by name,⁸⁸ into the government of Pius Quintus and Sextus Quintus in our times, who were both at their entrance esteemed but as pedantical friars, and he shall find that such popes do greater things, and proceed upon truer principles of estate,⁸⁹ than those which have ascended to the papacy from an education and breeding in affairs of estate and courts of princes; for although men bred in learning are perhaps to seek in⁹⁰ points of convenience and accommodating for the present, which the Italians call *reasons of state*, whereof the same Pius Quintus could not hear spoken with patience, terming them inventions against religion and the moral virtues; yet on the other side, to recompense that, they are perfect in those same plain grounds of religion, justice, honour, and moral virtue, which if they be well and watchfully pursued, there will be seldom use⁹¹ of those other, no more than of physic in a sound or well-dighted body. Neither can⁹² the experience of one man's life furnish examples and precedents for the events of one man's life. For as it happeneth sometimes that the grandchild, or other descendant, resembleth the ancestor more than the son; so many times occurrences of present times may sort⁹³ better with ancient examples than with those of the later or immediate⁹⁴

⁸⁷ *The women*, viz. Mamaea his mother, and Mæssa his grandmother. The latter soon died, and Mamaea then summoned to her assistance sixteen of the wisest and most virtuous senators, as a perpetual council of state. "The general tenor of her administration was equally for the benefit of her son and of the empire."—Gibbon, ch. vi.

⁸⁸ As by name, for instance. Pius the fifth was a Dominican, Sixtus the fifth a Franciscan friar. Pius was Pope from 1565—1572. The most remarkable event of his Pontificate was the defeat of the Turks in the battle of Lepanto, in which his fleet was engaged in conjunction with those of Venice and Spain. Sixtus was Pope from 1585—1590. His vigorous, though cruel, administration is described by Gibbon, ch. 70.

⁸⁹ *Estate*, state.

⁹⁰ To seek in, deficient in. *Points of convenience*, expedients. *Accommodating for the present*, arranging matters for the moment.

⁹¹ *Use*, need.

⁹² *Neither can, &c.* This is an additional reason for entrusting the work of government to learned men.

⁹³ *Sort with*, agree with, resemble.

⁹⁴ *Immediate*, present.

times : and lastly, the wit of one man can no more countervail learning than one man's means can hold way with⁹⁵ a common purse.

4. And as for those particular seducements or indispositions of the mind for policy and government, which learning is pretended to insinuate ; if it be granted that any such thing be, it must be remembered withal, that learning ministereth in every⁹⁶ of them greater strength of medicine or remedy than it offereth cause of indisposition or infirmity. For if by a secret operation it make men perplexed and irresolute, on the other side by plain precept it teacheth them when and upon what ground to resolve ; yea, and how to carry things in suspense without prejudice, till they resolve. If it make men positive and regular,⁹⁷ it teacheth them what things are in their nature demonstrative, and what are conjectural, and as well the use of distinctions and exceptions, as the latitude of principles⁹⁸ and rules. If it mislead by disproportion or dissimilitude of examples, it teacheth men the force of circumstances, the errors of comparisons, and all the cautions of application ; so that in all these it doth rectify more effectually than it can pervert. And these medicines it conveyeth into men's minds much more forcibly by the quickness and penetration⁹⁹ of examples. For let a man look into the errors of Clement¹ the seventh, so lively described by Guicciardine, who served under him, or into the errors of Cicero,² painted out by his own pencil in his Epistles to Atticus, and he will fly apace from being irresolute. Let him look into the errors of Phocion,³ and he will beware how he be obstinate or inflexible. Let

⁹⁵ Hold way with, to equal.

⁹⁶ Every, each. For the explanation of this passage, see above, n. 60, sq.

⁹⁷ Regular, adhering strictly to rules.

⁹⁸ The latitude of principles, to what extent principles should be adhered to.

⁹⁹ Quickness and penetration, life and force. Cp. the common proverb, "Example is better than precept." The word *quickness* in Bacon's time signified *life* : and *quick* was used where we should now say *living*.

¹ Pope Clement VII. was contemporary with Henry VIII. of England. Guicciardine says of him—"Both in deliberation and in the execution of what he had deliberated about, every fresh little consideration which might occur to him—every trifling impediment, which he might encounter, seemed enough to make him fall back into the same state of confusion in which he had been before he began to deliberate." E.

² Mommsen says of Cicero : "As a statesman without insight, opinion, or purpose, he figured successively as democrat, as aristocrat, and as a tool of the monarchs, and was never more than a short-sighted egotist."—Vol. iv., p. 641.

³ Phocion, an Athenian general, born B.C. 402. For his character see Grote, vol. xi., p. 77.

him but read the fable of Ixion,⁴ and it will hold him from being vaporous⁵ or imaginative. Let him look into the errors of Cato⁶ the second, and he will never be one of the Antipodes, to tread opposite to the present world.

5. And for the conceit that learning should dispose men to leisure and privateness, and make men slothful ; it were a strange thing if that which accustometh the mind to a perpetual motion and agitation should induce slothfulness : whereas contrariwise it may be truly affirmed, that no kind of men love business for itself but those that are learned ; for other persons love it for profit, as an hireling, that loves the work for the wages ; or for honour, as because it beareth them up in the eyes of men, and refresheth their reputation, which otherwise would wear ;⁷ or because it putteth them in mind of their fortune, and giveth them occasion to pleasure and displeasure ;⁸ or because it exerciseth some faculty wherein they take pride, and so entertaineth them in good humour and pleasing conceits toward themselves ; or because it advanceth any other their ends. So that as it is said of untrue valours, that some men's valours are in the eyes of them that look on⁹ ; so such men's industries are in the eyes of others, or at least in regard of their own designments : only learned men love business as an action according to nature, as agreeable to health of mind as exercise is to health of body, taking pleasure in the action itself, and not in the purchase :¹⁰ so that of all men they

⁴ *Ixion*, see Bk. 2 viii. 3.

⁵ *Vaporous*, boastful.

⁶ *Marcus Cato*, the last great champion of Republicanism in Rome. He committed suicide, B.C. 46, on hearing that his party was destroyed by the victory of Cæsar at Thapsus. See Mommsen, vol. iv., p. 469. After a certain point, Bacon says, it is useless to oppose the spirit of the age.

⁷ *Wear*, decrease.

⁸ *Giveth them occasion*, &c., i.e., gives them opportunities of rewarding their friends and punishing their enemies.

⁹ *Are in the eyes of them that look on*, i.e. a coward is sometimes bold in the presence of others, where cowardice would bring disgrace : so the industry of some men is to be attributed either to the desire of applause, or a regard for their own interests.

¹⁰ *In the purchase*. In the advantage which they derive from it. A learned man is not necessarily an honest statesman. His intellectual superiority may be employed in the interests of his country, but it may also be used in the service of ambition.

are the most indefatigable, if it be towards any business which can hold¹¹ or detain their mind.

6. And if any man be laborious in reading and study and yet idle in business and action, it groweth from some weakness of body or softness of spirit ;¹² such as Seneca speaketh of : *Some men live so much in the shade that whenever they are in the light they seem to be in trouble* ; and not of learning : well may it be that such a point of a man's nature may make him give himself to learning, but it is not learning that breedeth any such point in his nature.

7. And that learning should take up too much time or leisure ; I answer, the most active or busy man that hath been or can be, hath (no question) many vacant times of leisure, while he expecteth the tides and returns of business¹³ (except he be either tedious and of no dispatch, or lightly and unworthily ambitious to meddle in things that may be better done by others), and then the question is but how those spaces and times of leisure shall be filled and spent ; whether in pleasures or in studies ; as was well answered by Demosthenes to his adversary Æschines, that was a man given to pleasure and told him *That his orations did smell of the lamp* :¹⁴ *Indeed* (said Demosthenes) *there is a great difference between the things that you and I do by lamp-light*. So as no man need doubt¹⁵ that learning will expulse business, but rather it will keep and defend the possession of the mind against

¹¹ Which can hold their mind, which seems to them worthy of attention.

¹² Spirit, mind. There is no doubt that the retired life and mental habits of a student do tend to unfit him for active life. The concentration of his interests upon study makes him impatient of the necessary drudgery of business ; and his mode of life makes him deficient in 'knowledge of the world.' Moreover, being accustomed never to come to a decision without complete evidence, he is unfitted to act in those frequent emergencies when either the requisite *data* for decision are not attainable, or when there is no time to weigh them.

¹³ The tides and returns of business, i.e. busy times. Business ebbs and flows : and in times when there is little or no business, the statesman can study. Bacon's picture is drawn from the ministers of Queen Elizabeth, who were all men of letters, and who 'were the first generation of statesmen by profession that England produced.'—See Macaulay's Essay on Bacon.

¹⁴ His orations did smell of the lamp, i.e. they were the fruit of much care and study. The point of Demosthenes' reply is that he spent the night in study, Æschines in debauchery.

¹⁵ Doubt, fear. Expulse, expel.

idleness and pleasure, which otherwise at unawares¹⁶ may enter to the prejudice of both.¹⁷

8. Again, for that other conceit that learning should undermine the reverence of laws and government, it is assuredly a mere depravation and calumny, without all¹⁸ shadow of truth. For to say that a blind custom of obedience should be a surer obligation than duty taught and understood, it¹⁹ is to affirm, that a blind man may tread surer by a guide than a seeing man can by a light. And it is without²⁰ all controversy, that learning doth make the minds of men gentle, generous, maniable,²¹ and pliant to government ; whereas ignorance makes them churlish, thwart,²² and mutinous : and the evidence of time doth clear²³ this assertion, considering that the most barbarous, rude, and unlearned times have been most subject to tumults, seditions, and changes.

9. And as to the judgement of Cato the Censor, he was well punished for his blasphemy against learning, in the same kind wherein he offended ; for when he was past threescore years old, he was taken with an extreme desire to go to school again, and to learn the Greek tongue, to the end to peruse the Greek authors ; which doth well demonstrate that his former censure of the Grecian learning was rather an affected gravity, than according to the inward sense of his own opinion. And as for Virgil's verses, though it pleased him to brave²⁴ the world in taking to the Romans the art of empire, and leaving to others the arts of subjects ; yet so much is manifest that the Romans never ascended to that height of empire, till the time they had ascended to the height of other arts. For in the time of the two first Cæsars which had the art of government in greatest perfection, there lived the best poet, Virgilius Maro ; the best historiographer, Titus Livius ; the best antiquary, Marcus Varro ; and the best, or second orator,²⁵ Marcus Cicero, that to the memory of man are known. As for the

¹⁶ At unawares. See above, n. 67

¹⁷ Both, viz., business and learning.

¹⁸ All, any.

¹⁹ It, redundant.

²⁰ Without, outside : beyond dispute.

²¹ Maniable, manageable.

²² Thwart, perverse.

²³ Clear, prove.

²⁴ To brave, to challenge.

²⁵ The best or second orator. Bacon doubts whether Cicero or Demosthenes is first.

accusation of Socrates, the time must be remembered when it was prosecuted; which was under the Thirty Tyrants,²⁶ the most base, bloody, and envious persons that have governed; which revolution of state was no sooner over, but Socrates, whom they had made a person criminal, was made a person heroical, and his memory accumulate²⁷ with honours divine and human; and those discourses of his which were then termed corrupting of manners,²⁸ were after acknowledged for²⁹ sovereign medicines of the mind and manners, and so have been received ever since till this day. Let this therefore serve for answer to politiques, which in their humorous³⁰ severity, or in their feigned gravity, have presumed to throw imputations upon learning; which redargution nevertheless (save that we know not whether our labours may extend to other ages) were not needful for the present, in regard of the love and reverence towards learning, which the example and countenance of two so learned princes, Queen Elizabeth and your Majesty, being as Castor and Pollux, *bright stars*,³¹ stars of excellent light and most benign influence, hath wrought in all men of place and authority in our nation.

III. Pp 24--36. Bacon now proceeds to consider the discredit which is supposed to have been brought upon learning by the position, character, manners, and studies of learned men themselves: of these the last alone deserve consideration. No reasonable man would condemn a scholar because of the position in which circumstances had placed him, or the disposition with which nature had endowed him. However, we are dealing here not with rational objections, but with popular prejudices: so that the remaining considerations cannot be thus lightly dismissed. Learned men, it is said, are poor and obscure, and pursue mean occupations. This is not the place, Bacon says, for a panegyric on poverty, but it would be easy to show that the world owes much to poor, but learned men. Wealth is not always a guarantee of virtue: nor *ought* learning to be regarded as a means of obtaining wealth. As for obscurity, most men

²⁶ *The Thirty Tyrants*, after the retirement of the Spartans from Athens, B.C. 404, the government of the city was for a short time in the hands of a Committee of Thirty.

²⁷ *Accumulate*, loaded. This form of the participle frequently occurs in Bacon's writings.

²⁸ *Manners*, morals.

²⁹ *For*, as. For a similar estimate of the value of the Socratic dialectics, which we know chiefly in the dialogues of Plato, see Mill's *Essay on Liberty*, p. 26.

³⁰ *Humorous*, capricious. For *politiques*, see p. 6. n. 23.

³¹ *Bright stars*. Bacon was, to a certain extent, a believer in astrology. See note on iv. II.

allow the superior dignity and comfort of a private station : while there can be no greater mistake than that of regarding the occupation of a teacher as either unimportant or contemptible. In its influence upon character, the *tendency* of learning is to refine : the defects which it produces are unselfishness, verging on imprudence : and an inclination to aim at too high a standard in the attempts to reform public manners. These, it must be confessed, are faults which 'lean to virtue's side' : and learning itself supplies an antidote to the second of them. Again—it is said that in their intercourse with others learned men are wanting in tact. (§ 7.) This is not necessarily the case : and, besides, what men praise as tact is often only another name for interested obsequiousness. Mere awkwardness of demeanour is not worth consideration. Bacon utterly condemns all selfishness and meanness, but he says justly that there are occasions, on which scholars may, without loss of dignity, make concessions to those who are great and powerful.

III. I. Now therefore we come to that third sort of discredit or diminution of credit that groweth unto³² learning from learned men themselves, which commonly cleaveth fastest³³ : it is either from their fortune,³⁴ or from their manners,³⁵ or from the nature of their studies. For the first, it is not in their power ; and the second is accidental ; the third only is proper to be handled ; but because we are not in hand with³⁶ true measure, but with popular estimation and conceit, it is not amiss to speak somewhat of the two former. The derogations therefore which grow to learning from the fortune or condition of learned men, are either in respect of scarcity of means, or in respect of privateness of life and meanness of employments.

2. Concerning want, and that it is the case of learned men usually to begin with little, and not to grow rich so fast as other men, by reason they convert not their labours chiefly to lucre and increase, it were good to leave the common place³⁷ in commendation of

³² *Growtheth to*, attaches to.

³³ *Fastest*, closest. Cp.

'Siloa's brook that flowed
Fast by the Oracle of God.'—*Paradise Lost*, I. 11.

³⁴ *Fortune*, explained below to mean 'scarcity of means,' &c.

³⁵ *Manners*, the word includes both disposition and demeanour. We use it now to denote only the latter.

³⁶ *We are not in hand with*, we are not dealing with.

³⁷ *Common place*, a subject for discussion. The word 'place' is frequently used by Bacon in the sense of a 'topic,' e.g., Bk. 2 xiii. 7, on the analogy of the Latin word 'locus,' (a place, or a topic) and the word 'topic' is the Greek 'topos,' which signifies properly 'a place.'

poverty to some friar^{ss} to handle, to whom much was attributed by Machiavel in this point ; when he said, *That the kingdom of the clergy had been long before at an end, if the reputation and reverence towards the poverty of friars had not borne outst the scandal of the superfluities and excesses of bishops and prelates.* So a man might say that the felicity and delicacy^{to} of princes and great persons had long since turned to rudeness and barbarism, if the poverty of learning had not kept up civility^{t1} and honour of life : but without any such advantages, it is worthy the observation^{t2} what a reverent and honoured thing poverty of fortune was for some ages in the Roman state, which nevertheless was a state without paradoxes. For we see what Titus Livius saith in his introduction : *If I am not led away by love of the task which I have undertaken, there never was a state greater nor more religious, nor richer in good examples than Rome : nor one into which avarice and luxury were so long in making their way : nor one in which poverty and economy were held in such great and such long continued esteem.* We see likewise, after that the state of Rome was not itself, but did degenerate, how that person that took upon him to be counsellor to Julius Cæsar after his victory where to begin his restoration of the state, maketh it of all points the most summary^{t3} to take away the estimation of wealth : *But these and all evils will disappear when wealth is no longer honoured, and when the magistracies and other objects of general*

^{ss} Friar . . . to whom : a similar construction occurs, Bk. 2. i. 10. In the Latin translation it is ‘mendicant friars,’ a body of men so called from the vow of poverty which they took. They belonged to the Franciscan and Dominican orders of monks. For an account of their life and work, see Green’s *History of the English People*. Vol. I., p. 256.

st Borne out, compensated for. The Christian priesthood would have been condemned long ago, if it had been judged by the conduct of the members of its higher orders : it was tolerated out of respect for the virtues of its humbler and poorer members. We may notice, in connection with Bacon’s remarks, the *Defence of Poverty*, by William of Ockham. It was published in 1323, and was a violent protest against the power, pride, and wealth of the Pope and the Prelates of the Church.

^{to} Delicacy, luxury.

^{t1} Civility, refinement. Bacon means that mere material prosperity does not constitute civilization. Without learning man would be ‘devoid of every finer art and elegance of life.’—Thomson’s *Summer*, v. 1761.

^{t2} Worthy the observation, it is worth noticing.

^{t3} Summary, efficacious. The counsellor alluded to in the text is supposed to be Sallust.

ambition are not procurable by money. To conclude this point, as it was truly said, that *A blush is virtue's colour*, though sometime it come from vice; so it may be fitly said that *Poverty is virtue's fortune*, though sometimes it may proceed from misgovernment⁴⁴ and accident. Surely Salomon hath pronounced it both in censure, *He that maketh haste to be rich shall not be innocent*; and in precept; *Buy the truth, and sell it not; and so of wisdom and knowledge*; judging that means were to be spent upon learning, and not learning to be applied to means. And as for the privateness or obscurity (as it may be in vulgar estimation accounted) of life of contemplative men; it is a theme so common to extol a private life, not taxed with⁴⁵ sensuality and sloth, in comparison and to the disadvantage of a civil⁴⁶ life, for safety, liberty, pleasure, and dignity, or at least freedom from indignity, as no man handleth it but handleth it well; such a consonancy it hath to men's conceits in the expressing and to men's consents in the allowing.⁴⁷ This only⁴⁸ I will add, that learned men forgotten in states and not living in the eyes of men, are like the images of Cassius and Brutus in the funeral of Junia; of which not being represented, as many others were, Tacitus saith, *They outshone them all from the very fact that they were not to be seen.*

3. And for meanness of employment, that which is most traduced to contempt⁴⁹ is that the government of youth is commonly allotted to them; which age, because it is the age of least authority, it⁵⁰ is transferred to the disesteeming⁵¹ of those employments wherein youth is conversant, and which are conversant about youth. But how unjust this traducement is (if you will reduce things from popularity of opinion to measure of reason) may appear in that we see men are

⁴⁴ Misgovernment, intemperance.

⁴⁵ Not taxed with, free from.

⁴⁶ Civil, public.

⁴⁷ Allowing, admitting: approving.

⁴⁸ This only, &c. Bacon means to say that the public often keep a man's merits in remembrance all the more, because Government does not honour them as they deserve. Tacitus says of another man 'The refusal of the honour heightened his renown.' It was the custom at Roman funerals to carry in procession the images of the deceased's ancestors. See Tac. Ann. iii.

⁴⁹ Traduced to contempt, held up to contempt. 'Traducement,' below, signifies 'calumny.'

⁵⁰ It, redundant. The same construction occurs frequently in Bacon's writings.

⁵¹ Disesteeming, disparaging.

more curious⁵² what they put into a new vessel than into a vessel seasoned ; and what mould they lay about a young plant than about a plant corroborate ;⁵³ so as the weakest terms and times of all things use to have⁵⁴ the best applications and helps. And will you hearken to the Hebrew rabbins ? *Your young men shall see visions, and your old men shall dream dreams*; say they⁵⁵ youth is the worthier age, for that visions are nearer apparitions of God than dreams ? And let it be noted, that howsoever⁵⁶ the condition of life of *pedantes* hath been scorned upon theatres, as the ape of tyranny ; and that the modern looseness or negligence hath taken no due regard to the choice of schoolmasters and tutors ; yet the ancient wisdom of the best times did always make a just complaint, that states were too busy with their laws and too negligent in point of education : which excellent part of ancient discipline hath been in some sort revived of late times by the colleges of the Jesuits ;⁵⁷ of whom, although in regard of their superstition⁵⁸ I may say, *The better they are the worse they are* ; yet in regard to this, and some other points concerning human learning and moral matters, I may say, as Agesilaus said to his enemy Pharnabazus, *They are so good that I wish they were on our side*. And thus much touching the discretions drawn from the fortunes of learned men.

4. As touching the manners of learned men, it is a thing personal and individual : and no doubt there be amongst them, as in other professions, of all temperatures :⁵⁹ but yet so as it is not without truth which is said, that studies⁶⁰ have an influence and operation upon the manners of those that are conversant in them.

⁵² Curious, careful

⁵³ Corroborate, which has attained its full strength.

⁵⁴ Use to have, are accustomed to have. Applications, supports. Rabbins, theological teachers.

⁵⁵ Say they, i.e., from which text they infer.

⁵⁶ Wright compares Florio's Montaigne, p. 60. 'I have in my youth often-times been vexed to see a pedant brought in; in most of Italian comedies, for a vice or a sporte-maker.' For the meaning of 'pedant,' see p. 18. n. 85.

⁵⁷ Jesuits, so called from the 'Society of Jesus' to which they belong. They are Catholic priests, and the Society was formed in 1543. For an account of their services in the cause of education, see Buckle's *History of Civilisation*, vol. ii. p. 336; and Green's *History of the English People*, vol. ii., p. 262.

⁵⁸ Their superstition is all the more blameworthy because of their intelligence. For Agesilaus, see vii. 30, n. 24.

⁵⁹ Temperatures, dispositions.

⁶⁰ In the Latin translation Bacon adds, 'Except when it enters into a mind which is much depraved, learning corrects and improves the natural disposition.'

5. But upon an attentive and indifferent⁶¹ review, I for my part cannot find any disgrace to learning can proceed from the manners of learned men ; not inherent⁶² to them as they are learned ; except it be a fault (which was the supposed fault of Demosthenes, Cicero, Cato the second, Seneca, and many more) that because the times they read of are commonly better than the times they live in, and the duties taught better than the duties practised, they contend⁶³ sometimes too far to bring things to perfection, and to reduce the corruption of manners⁶⁴ to honesty of precepts or examples of too great height. And yet hereof they have caveats⁶⁵ enough in their own walks. For Solon,⁶⁶ when he was asked whether he had given his citizens the best laws, answered wisely, *Fear of such as they would receive* : and Plato, finding that his own heart could not agree with the corrupt manners of his country, refused to bear place or office ; saying, *That a man's country was to be used as his parents were, that is with humble persuasions, and not with contestations.*⁶⁷ And Cæsar's counsellor put in the same caveat, *Do not attempt to restore things to the original institutions which, by the long corruption of manners, have fallen into contempt* ; and Cicero noteth this error directly in Cato the second,⁶⁸ when he writes to his friend Atticus ; *Cato's opinions are excellent, but sometimes do harm to the commonwealth : for he speaks as if he were living in Plato's republic,*⁶⁹ *and not amid the dregs of the Roman populace.*" And the same Cicero doth excuse⁷⁰

⁶¹ *Indifferent*, impartial.

⁶² *Not inherent*, that is to say, not from such manners as are inherent, &c.

⁶³ *Contend*, strive.

⁶⁴ *Manners*, morals. Cp. l. 14.

⁶⁵ *Caveats*, warnings. Cp. below, l. 18.

⁶⁶ *Solon*, a celebrated Athenian legislator, born about 638 B. C.

⁶⁷ *Contestation*, strife. Improvements, according to Plato, should be effected by persuasion, not by force : and as he saw that, if he held office, he could not introduce the reforms which he considered necessary without using force, he preferred not to hold office. The story is told by Cicero, *Ep. ad Fam.* 1-9.

⁶⁸ *Cato the second*, p. 21, n. 6. No violent revolutions should be attempted either in morals or politics. We should attempt to raise the standard of both gradually, as the people advance in respect of education.

⁶⁹ *Plato's republic*, an ideally perfect state sketched by Plato : a Utopia.

⁷⁰ *Excuse and expound*, at the same time apologises for them, and shows why they did it. The philosophers, says Cicero, purposely proposed an unattainable standard of perfection, in order that, in their attempts to attain to it, men might not fail to attain to the highest perfection of which they were capable.

and expound the philosophers for going too far and being too exact in their prescripts, when he saith, *Those very teachers of virtue themselves seem to have fixed the standard of duty somewhat higher than nature can bear: in order that after striving our utmost to attain to it, we might at any rate reach the proper standard:* and yet himself might have said, *I do not act up to my own precepts;* for it was his own fault, though not in so extreme a degree.

6. Another fault likewise much of this kind hath been incident to learned men; which is, that they have esteemed the preservation, good, and honour of their countries or masters before their own fortunes or safeties. For so saith Demosthenes unto the Athenians; *If it please you to note it, my counsels unto you are not such whereby I should grow great amongst you, and you become little amongst the Grecians; but they be of that nature, as they are sometimes not good for me to give, but are always good for you to follow.* And so Seneca, after he had consecrated those five years of Nero's reign to the eternal glory of learned governors, held on his honest and loyal course of good and free counsel, after his master grew extremely corrupt in his government. Neither can this point otherwise be; for learning endueth men's minds with a true sense of the frailty of their persons, the casualty⁷¹ of their fortunes, and the dignity of their soul and vocation: so that it is impossible for them to esteem⁷² that any greatness of their own fortune can be a true or worthy end of their being and ordainment;⁷³ and therefore are desirous to give their account to God, and so likewise to their masters under God (as kings and the states that they serve⁷⁴) in these words; *Lo! I have made profit for you, and not Lo! I have made profit for myself:* whereas the corrupter sort of mere politiques,⁷⁵ that have not their thoughts established by learning in the love and apprehen-

⁷¹ *Casuality*, uncertainty. We use the word in the sense of 'an accident.' Here it means 'Liability to accident.' With this paragraph cp. p. 21, § 5 and Essay xxiii. In the Latin translation Bacon says that scrupulous honesty and unselfishness are attributed to learned men 'perhaps not unjustly.'

⁷² *To esteem*, to think.

⁷³ *Ordainment*, position: appointment.

⁷⁴ *As kings and the states, &c., i.e.* whether they serve under a king or a republic.

⁷⁵ *Politiques*, p. 7, n. 23.

sion⁷⁶ of duty, nor never look abroad into universality do refer all things to themselves,⁷⁷ and thrust themselves into the centre of the world, as if all lines should meet in them and their fortunes; never caring in all tempests what becomes of the ship of estates,⁷⁸ so they may save themselves in the cockboat⁷⁹ of their own fortune; whereas men that feel the weight of duty and know the limits of self-love, use to make good their places and duties,⁸⁰ though with peril; and if they stand⁸¹ in seditious and violent alterations, it is rather the reverence which many times both adverse parts do give to honesty, than any versatile advantage of their own carriage.⁸² But for this point of tender⁸³ sense and fast obligation of duty which learning doth endue the mind withal, howsoever fortune may tax⁸⁴ it, and many in the depth of their corrupt principles may despise it, yet it will receive an open allowance⁸⁵ and therefore needs the less disproof or excusation.

7. Another fault incident commonly to learned men, which may be more probably⁸⁶ defended than truly denied is, that they fail some-

⁷⁶ *Apprehension*, understanding; *nor never, &c.*, i.e. who confine their attention to their own individual interests, without thinking of the public good. Obs. the double negative.

⁷⁷ *Do refir, &c.* Cp. "It is a poor centre of a man's actions, himself. . . . The referring of all to a man's self is a desperate evil in a servant to a prince. . . . for whatsoever affairs pass such a man's hands, he crooketh (bendeth) them to his own ends, which must needs be often eccentric to (different from) the ends of his master or state."—*Essay xxiii.*

⁷⁸ *Estates*, kingdoms.

⁷⁹ *Cockboat*, little boat. The word shows the insignificance of the fate of the individual, in comparison with that of the state, which is compared to a large vessel.

⁸⁰ *Make good their places and duties*, i.e. perform the duties of their station. Cp. "Divide with reason between self-love and society: and be so true to thyself, as thou be not false to others, specially to thy king and country."—*Essay xxiii.*

⁸¹ *Stand*, remain safe. The meaning of the passage is that, if they are preserved through seasons of rebellion and revolution, they owe their safety not to their power of making friends with the stronger party, but to the universal respect which their honesty commands.

⁸² *Carriage*, behaviour.

⁸³ *Tender*, scrupulous.

⁸⁴ *Tax*, burden, i.e. try it. No amount of misfortune will induce such a man to become dishonest.

⁸⁵ *Allowance*, approval.

⁸⁶ *More probably*, i.e. in a way which will meet with more general approval; more successfully.

times in applying themselves⁸⁷ to particular persons : which want of exact application ariseth from two causes ; the one, because the largeness of their mind can hardly confine itself to dwell in the exquisite⁸⁸ observation or examination of the nature and customs of one person : for it is a speech for a lover, and not for a wise man, *We are a sufficiently large theatre one for another.*⁸⁹ Nevertheless I shall yield, that he that cannot contract the sight of his mind as well as disperse and dilate it, wanteth a great faculty. But there is a second cause,⁹⁰ which is no inability, but a rejection upon choice⁹¹ and judgement. For the honest and just bounds of observation by one person upon another, extend no further but to understand him sufficiently, whereby not to give him offence, or whereby to be able to give him faithful counsel,⁹² or whereby to stand upon reasonable guard and caution in respect of a man's self. But to be speculative into another man to the end to know how to work him,⁹³ or wind him, or govern him, proceedeth from a heart that is double and cloven and not entire⁹⁴ and ingenuous ; which as in friendship it is want of integrity, so towards princes or superiors is want of duty. For the custom of the Levant,⁹⁵ which is that subjects do forbear to gaze or fix their eyes upon princes is in the outward ceremony barbarous, but the moral is good ; for

⁸⁷ In applying themselves, the meaning of the phrase is explained below, l. 10 seqq.

⁸⁸ Exquisite, careful.

⁸⁹ A lover is content with contemplating his beloved : but no one is of sufficient importance to claim the undivided attention of the wise man. Cp. "It was a poor saying of Epicurus, '*We are a sufficiently large theatre, one for another*' : as if man, made for the contemplation of heaven and all noble objects, should do nothing but kneel before a little idol, and make himself subject, though not of the mouth, as beasts are, yet of the eye, which was given him for higher purposes."—*Essay x.*

⁹⁰ Cause, viz., why learned men do not study the character of individuals. The cause is their uprightness.

⁹¹ A rejection upon choice, a deliberate refusal to do so.

⁹² Cp. "Counsellors should not be too speculative into their Sovereign's person. The true composition of a counsellor is rather to be skilful in their master's business, than in his nature : for then he is like to advise him and not to feed his humour."—*Essay xx.*

⁹³ To work, to influence.

⁹⁴ Entire, honest. Cp. the word 'sincere' which means properly 'entire.'

⁹⁵ The Levant, i.e. the East generally. The Greek historian Herodotus makes this custom as old as 700 b. c. Ellis supposes, that Bacon is referring to the narration of some modern traveller.

men ought not by cunning and bent⁹⁶ observations to pierce and penetrate into the hearts of kings⁹⁷ which the scripture hath declared to be inscrutable.

8. There is yet another fault (with which I will conclude this part) which is often noted in learned men, that they do many times fail to observe decency and discretion in their behaviour and carriage,⁹⁸ and commit errors in small and ordinary⁹⁹ points of action, so as the vulgar sort of capacities do make a judgement of them in greater matters by that which they find wanting in them in smaller. But this consequence¹ doth oft deceive men, for which I do refer them over to that which was said by Themistocles, arrogantly and uncivilly² being applied to himself out of his own mouth, but, being applied to the general state of this question, pertinently and justly; when being invited to touch a lute he said, *He could not fiddle, but he could make a small town a great state.* So no doubt many may be well seen in the passages³ of government and policy, which are to seek in⁴ little and punctual⁵ occasions. I refer them also to that which Plato said of his master Socrates, whom he compared to the gallipots of apothecaries, which on the outside had apes and owls and antiquies⁶ but contained within sovereign and precious liquors and confec-

⁹⁶ Bent, crafty : not straightforward.

⁹⁷ The hearts of kings, &c. p. 2, n. 4.

⁹⁸ Carriage, p. 31, n. 82.

⁹⁹ Small and ordinary, &c. In the Latin translation Bacon adds, 'For instance in their looks, gesture, gait, daily conversation, and the like.'

¹ Consequence, inference. See Bk. 2, xiv. 4, n. 4.

² Uncivilly, with bad taste. Cp. "The speech of Themistocles, the Athenian, which was haughty and arrogant in taking so much to himself, had been a grave and wise censure applied at large to others. Desired at a feast to touch a lute, he said he could not fiddle, but yet he could make a small town a great city."—Essay xxix. A man may be wanting in small accomplishments, and yet be a very able man.

³ Well seen in the passages, well versed in the transactions.

⁴ To seek in, p. 19, n. 90.

⁵ Punctual, minute.

⁶ Antiques, fanciful figures. The word used in the Latin translation is 'Satyrs.' Alcibiades in one of the dialogues of Plato compares Socrates to the masks of the god Silenus, the faces of which were hideous: but when they were opened, images of the gods were found inside. Spedding supposes that Bacon was thinking of the following passage in the French humourist Rabelais: "Silenuses formerly were small boxes, such as we see at present in apothecaries' shops, with merry and grotesque figures painted on the top."

tions⁷; acknowledging that to an external report⁸ he was not without superficial levities and deformities, but was inwardly replenished with excellent virtues and powers. And so much touching the point of manners of learned men.

9. But in the mean time⁹ I have no purpose to give allowance¹⁰ to some conditions and courses base and unworthy, wherein divers professors of learning have wronged themselves¹¹ and gone too far; such as were those trencher philosophers¹² which in the later age of the Roman state were usually in the houses of great persons, being little better than solemn parasites¹³; of which kind Lucian¹⁴ maketh a merry description of the philosopher that the great lady took to ride with her in her coach, and would needs have him carry her little dog, which he doing officiously and yet uncomely,¹⁵ the page scoffed and said, *That he doubted the philosopher of a Stoic would turn to be a Cynic.*¹⁶ But above all the rest, the gross and palpable flattery, whereunto many not unlearned have abased and abused their wits and pens, turning¹⁷ (as Du Bartas saith) Hecuba into Helena, and

⁷ Confectiones, medicines.

⁸ To an external report, to those who judged by appearances.

⁹ In the meantime, i.e. before proceeding further, I must warn my readers that, &c.

¹⁰ Allowance, p. 31, n. 85.

¹¹ Wronged themselves, disgraced themselves.

¹² Trencher philosophers, hangers-on at the tables of the great. A trencher is a dish or plate on which food is placed.

¹³ A parasite, means literally ‘one who eats with another’: ‘a guest.’ It is used to denote those who by flattery manage to live at the expense of others. The satire of Lucian, referred to below, is directed against Greek scholars, who practised the arts of the parasite in the houses of wealthy Romans, and so brought disgrace both on themselves and their calling.

¹⁴ Lucian, a satirist and humourist, was a native of Samosata on the Euphrates. He was born about 125 B.C.

¹⁵ Uncomely, adv. awkwardly. We use the word as an adjective.

¹⁶ There is a play on the word *Cynic*, which means *dog-like*, and was also the name of a school of Greek philosophers, to which Diogenes, mentioned below, belonged. The name ‘dog-like’ was perhaps given to these philosophers from their coarse way of life. The Stoics were another sect of philosophers, remarkable for their austerity and indifference to worldly goods.

¹⁷ Turning, &c., i.e. representing old and ugly women as young and beautiful, and vicious women as chaste. Hecuba was the wife of Priam, king of Troy. Helen was the wife of the Grecian Menelaus: her seduction by Paris was the cause of the Trojan war. Faustina was the wife of the Roman Emperor, Marcus Antoninus, and was celebrated for her immorality.

Faustina into Lucretia, hath most diminished the price and estimation of learning. Neither is the modern dedication of books and writings, as to patrons, to be commended ; for that¹⁸ books (such as are worthy the name of books) ought to have no patrons but truth and reason. And the ancient custom was to dedicate them only to private and equal friends, or to entitle the books with their names : or if to kings and great persons, it was to some such¹⁹ as the argument of the book was fit and proper for : but these and the like courses may deserve rather reprehension than defence.

10. Not that I can tax²⁰ or condemn the morigeration or application²¹ of learned men to men in fortune. For the answer was good that Diogenes made to one that asked him in mockery, *How it came to pass that philosophers were the followers of rich men, and not rich men of philosophers?* He answered soberly, and yet sharply, *Because the one sort²² knew what they had need of, and the other did not.* And of the like nature was the answer which Aristippus²³ made, when having a petition to Dionysius, and no ear given to him, he fell down at his feet ; whereupon Dionysius stayed and gave him the hearing, and granted it ; and afterward some person, tender²⁴ on the behalf of philosophy, reproved Aristippus that he would offer²⁵ the profession

Lucretia was a virtuous Roman matron who was violated by the son of king Tarquin, and who, rather than survive the shame, committed suicide.

Ellis says that the writings of Du Bartas were held in great esteem by king James. He was born in 1544.

The student will find some remarks on literary patronage in Macaulay's *Essay on Johnson* and in Buckle's *History of Civilization*, vol. ii., ch. iv. Patronage was necessary to the scholar in times when readers were so few that he could not maintain himself by his pen.

¹⁸ For that, because.

¹⁹ It was to some such, &c., as Bacon himself had done : see above, pp. 1—5.

²⁰ Tax, find fault with. Morigeration, humouring.

²¹ Application, p. 32, n. 87.

²² The one sort, viz. philosophers : the other, viz. the rich.

²³ Aristippus, born about 435 B.C. He was the founder of the Cyrenaic school of philosophy. Dionysius was the ruler of Syracuse.

²⁴ Tender, sensitive.

²⁵ That he would offer, i.e. for offering. The point of Aristippus' reply is that a philosopher, who has a request to make, must make it prostrate, if the king will not listen to him in any other attitude. Cp. Johnson, "You may be "prudently attached to great men, and yet independent. You are not to do "what you think wrong: and, Sir, you are to calculate, and not to pay too dear "for what you get, you must not give a shilling's worth of court for sixpence

of philosophy such an indignity as for a private suit to fall at a tyrant's feet : but he answered, *It was not his fault, but it was the fault of Dionysius, that had his ears in his feet.* Neither was it accounted weakness but discretion in him that would not dispute his best with Adrianus Cæsar ; excusing himself, *That it was reason to yield to him that commanded thirty legions.* These and the like applications²⁶ and stooping to points of necessity and convenience cannot be disallowed ; for though they may have some outward²⁷ baseness, yet in a judgement truly made they are to be accounted submissions to the occasion and not to the person.

IV. Pp. 36—54. Bacon now proceeds to consider the last and most serious objection which has been raised against learning, and which is based on the results of the studies of learned men. He confesses that there are certain spurious kinds of learning, but genuine learning is not for this reason to be despised. Gold is not valueless, because, when first dug out of the mine, it is embedded in worthless matter. Bacon proposes first to eliminate and discard the spurious kinds of learning : when this has been done, the value of true learning will be appreciated.

The three circumstances which have brought discredit upon learning are these : (i.) learned men have propounded untruths : (ii.) they have been over-subtle and contentious : (iii.) they have been guilty of affectation.

Affectation relates not to matter, but to style, and is first considered. The Reformers, says Bacon, were led to a careful study of the ancient writers, partly with a view of deriving from them support for their own opinions, partly with a view of ascertaining what was that primitive practice of the Church, which they wished to restore. By this diligent study of the ancient tongues, the Reformers were inspired with an admiration for them which, added to their hatred of the barbarous style of the schoolmen, and to the necessity, which they were under, of expressing themselves in language which would impress the vulgar, led to an affected purism of style and a luxuriant extravagance of speech. *Matter was, by them, sacrificed to style.* This fault of affectation shows itself at intervals, and always brings discredit upon learning. Style is by no means to be despised, but a good style is not to be accepted in the place of matter.

The second fault, viz. that of over-subtlety and contentiousness is worse than the first. There is no great harm in affected language, provided it is the vehicle of truth : but nothing can atone for deficiency in the matter. (§ 5.) It is the fault of which the Schoolmen were conspicuously guilty. By constantly exercising their ingenuity upon very limited *data*, they have spun an endless, “worth of good. But if you can get a shilling's worth of good for sixpence “worth of court, you are a fool if you do not pay court.”

²⁶ Applications, see above, n. 21.

²⁷ Outward, i.e. in appearance.

but quite unsubstantial and worthless web of philosophy. This over-subtilty of the Schoolmen showed itself both in their choice of subjects, and in their method of discussion. They chose the most fruitless subjects for discussion : and in the discussions themselves they contented themselves with setting up each proposition in science as an object of attack and defence. Such a method could only issue in fruitless altercations about trifles. A proposition is to be considered with the limitations which the context requires : thus looked at, it may be true: though stated absolutely it may be false. A stick will stand upright in the middle of a bundle: but, unsupported, it will fall to the ground. The Schoolmen might have advanced the cause of learning, if they had sought the necessary *data* for reasoning either from God's word or from His works. They failed because they were content to argue from their own *a priori* ideas, or to spin endless syllogisms from a few unverified premisses.

The third fault—untruth—is the worst of all. It is the very negation of knowledge. It is due to credulity and intentional deceit, two faults which generally coexist. Credulity manifests itself in three ways, (i.) with regard to matters of fact. Men are too ready to give credence to alleged miracles, or to prodigies in natural history. (ii.) A man may be too credulous as to what a given art can effect. Alchemy, astrology, and magic are effective arts within certain limits: but it is well known how the professors of them have imposed upon the credulity of mankind. (iii.) Men give too ready an assent to any proposition which is sanctioned by the authority of a great name.

IV. i. Now I proceed to those errors and vanities which have intervened amongst the studies themselves of the learned, which is that which is principal and proper to²⁸ the present argument ; wherein my purpose is not to make a justification of the errors, but by a censure and separation of the errors to make a justification of that which is good and sound, and to deliver that from the aspersion of the other. For we see that it is the manner of men to scandalize and deprave²⁹ that which retaineth the state and virtue,³⁰ by taking advantage upon³¹ that which is corrupt and degenerate: as the heathens in the primitive church used to blemish and taint the Christians with the faults and corruptions of heretics. But nevertheless I have no meaning³² at this time to make any exact animadversion of the errors and impediments in matters of learning, which are more secret and remote from vulgar

²⁸ Which is principal and proper to, i.e. with which the present argument is principally and more appropriately concerned.

²⁹ To scandalize and deprave, to abuse and depreciate.

³⁰ Retaineth the state, has not degenerated. For 'the' we should now say 'it's.'

³¹ Upon, we should say 'of.'

³² I have no meaning, I do not intend.

opinion, but only to speak unto³⁸ such as do fall under or near unto a popular observation.

2. There be therefore chiefly three vanities in studies, whereby learning hath been most traduced.³⁴ For those things we do esteem vain, which are either false or frivolous, those which either have no truth or no use: and those persons we esteem vain, which are either credulous or curious³⁵; and curiosity is either in matter or words³⁶: so that in reason³⁷ as well as in experience there fall out to be these three distempers³⁸ (as I may term them) of learning: the first, fantastical³⁹ learning; the second, contentious learning; and the last, delicate⁴⁰ learning; vain imaginations, vain altercations, and vain affectations; and with the last I will begin. Martin Luther,⁴¹ conducted (no doubt) by an higher providence, but in discourse of reason,⁴² finding what a province⁴³ he had undertaken against the bishop of Rome and the degenerate traditions of the church, and finding his own solitude, being no ways aided by the opinions of his own time, was enforced to awake

³⁸ Unto, concerning.

³⁴ Traduced, calumniated.

³⁵ Curious, subtle. See § 6. The Latin translation adds—‘In things which are of little use.’

³⁶ Curiosity is either in matter or words, The Latin translation adds by way of explanation—“That is to say, when men labour at unimportant subjects or waste their time in verbal quibbles.” See below, § 6.

³⁷ In reason, as we should have expected *a priori*. Credulity and deceit produce fantastical or untrue philosophy. Frivolity produces affected learning. Curiosity produces a contentious philosophy.

³⁸ Distempers, diseases.

³⁹ Fantastical, false.

⁴⁰ Delicate, affected.

⁴¹ Martin Luther. The literary affectation of the period was not confined to the preachers of Reform. When, in the fifteenth century, Constantinople was sacked by the Turks, the Greek Scholars, who had resided there, took refuge in Italy, and revived in the West the study of the old Latin and Greek Classics. This period of Western History is known generally as the ‘Renaissance’ (lit. the new birth or revival). This study of antiquity influenced both the form and matter of contemporary literature. Green notices ‘Euphuism’ as one form of literary affectation prevalent in Elizabeth’s time. *History of the English People*, vol. ii., p. 457.

⁴² In discourse of reason, by the exercise of his reason.

⁴³ A province, a task. It is probable that the Latin word ‘provincia’ meant ‘a public duty,’ before it acquired the more special meaning of ‘a district.’

all antiquity,⁴⁴ and to call former times to his succours⁴⁵ to make a party against the present time: so that the ancient authors, both in divinity and in humanity, which had long time slept in libraries, began generally to be read and revolved.⁴⁶ This by consequence did draw on a necessity of a more exquisite⁴⁷ travail in the languages original, wherein those authors did write, for the better understanding of those authors, and the better advantage of pressing and applying their words. And thereof grew again a delight in their manner of style and phrase, and an admiration of that kind of writing; which was much furthered and precipitated by the enmity and opposition that the propounders of those primitive but seeming new opinions had against the schoolmen;⁴⁸ who were generally of the contrary part,⁴⁹ and whose writings were altogether in a differing style and form; taking liberty to coin and frame new terms⁵⁰ of art to express their own sense, and to avoid circuit of speech, without regard to the pureness, pleasantness, and (as I may call it) lawfulness of the phrase or word. And again, because the great labour then was with the people (of whom the Pharisees⁵¹ were wont to say, *That wretched crowd that knoweth not the law,*) for the winning and persuading of them, there grew of necessity in chief price and request eloquence and variety of discourse, as the fittest and forciblest access into the capacity of the vulgar sort: so that these four causes concurring, the admiration of ancient authors, the hate of the schoolmen, the exact study of languages, and the efficacy of preaching, did bring in an affectionate study of eloquence

⁴⁴ To awake all antiquity, i.e. to call attention to the opinions of the ancients.

⁴⁵ Succours, we should now use the singular.

⁴⁶ Revolved, considered.

⁴⁷ Exquisite, careful.

⁴⁸ The schoolmen, the philosophers of the middle ages. The Scholastic philosophy lasted, roughly speaking, from the ninth to the fifteenth century. The name was taken originally from the teachers in the schools established by Charlemagne.

⁴⁹ Part, party. The Schoolmen were all Ecclesiastics and, of course, members of the Catholic Church.

⁵⁰ To coin and frame new terms. We are indebted to the Schoolmen for many of the technical terms of the formal logic, and for a number of words, such as essence, entity, substance, &c., which are familiar to students of philosophy.

⁵¹ The Pharisees, a sect of the Jews, remarkable for their scrupulous observance of the precepts and ritual of the Mosaic Law.

and copie⁵² of speech, which then began to flourish. This grew speedily to an excess; for men began to hant more after words than matter; more after the choiceness of the phrase, and the round and clean⁵³ composition of the sentence, and the sweet falling⁵⁴ of the clauses, and the varying and illustration of their works with tropes and figures, than after the weight of matter, worth of subject, soundness of argument, life of invention, or depth of judgement. Then grew the flowing and watery⁵⁵ vein of Osorius, the Portugal bishop, to be in price. Then did Sturmius⁵⁶ spend such infinite and curious⁵⁷ pains upon Cicero the Orator, and Hermogenes the Rhetorician, besides his own books of Periods and Imitation, and the like. Then did Carr of Cambridge⁵⁸ and Ascham⁵⁹ with their lectures and writings almost deify Cicero and Demosthenes, and allure all young men that were studious unto that delicate⁶⁰ and polished kind of learning. Then did Erasmus⁶¹ take occasion to make the scoffing echo, *I have spent ten years in reading Cicero*; and the echo answered in Greek *Thou donkey.*⁶² Then grew the learning of the schoolmen to be utterly despised as barbarous. In sum, the whole inclination and bent of those times was rather towards copie than weight.⁶³

3. Here therefore is the first distemper⁶⁴ of learning, when men

⁵² *Copie*, fluency.

⁵³ *Round and clean*, perfect and polished. The word 'round' expresses an absence of roughness.

⁵⁴ *Falling*, cadence: rhythm.

⁵⁵ *Watery*, thin: unsubstantial. The word denotes the absence of matter in his speech. Osorius was Bishop of Sylves in Algarves. He died in 1580. One of his chief works was a book containing an account of the Portuguese discoveries and conquests which took place in the reign of Emanuel the Great. (1495-1521) E.

⁵⁶ Sturmius (1507-1589) was a Professor at Paris and Strasburg. He has been styled 'the German Cicero.' E.

⁵⁷ *Curious*, p. 15, n. 60.

⁵⁸ Carr of Cambridge. Nicholas Carr (1523-1568) was Professor of Greek in the University of Cambridge.

⁵⁹ Roger Ascham (1515-1568) was tutor to Queen Elizabeth.

⁶⁰ *Delicate*, p. 38, n. 40.

⁶¹ Erasmus, one of the most learned scholars of the Renaissance period. See Green's *History of the English People*, vol. ii., p. 81.

⁶² The last word in Erasmus' sentence is '*Cicerone*': the Greek word which echoes to it is "one," i.e. 'thou donkey.'

⁶³ *Copie*, See n. 52.

⁶⁴ *Distemper*, p. 38, n. 38.

study words and not matter ; whereof, though I have represented an example of late times, yet it hath been and will be *in a greater or less degree* in all time. And how is it possible but this should have an operation to discredit learning, even with vulgar capacities, when they see learned men's works like the first letter of a patent, or limned book⁶⁵ ; which though it hath large flourishes, yet it is but a letter ? It seems to me that Pygmalion's⁶⁶ frenzy is a good emblem or portraiture of this vanity : for words are but the images of matter ; and except they have life of reason and invention, to fall in love with them is all one as to fall in love with a picture.

4. But yet notwithstanding it is a thing not hastily to be condemned, to clothe and adorn the obscurity even of philosophy itself with sensible⁶⁷ and plausible elocution. For hereof we have great examples in Xenophon, Cicero, Seneca, Plutarch, and of Plato also in some degree ; and hereof likewise there is great use : for surely, to the severe inquisition of truth and the deep progress into philosophy, it is some hindrance ; because it is too early satisfactory to the mind of man, and quencheth the desire of further search, before we come to a just period.⁶⁸ But then if a man be to have⁶⁹ any use of such knowledge in civil⁷⁰ occasions, of conference, counsel, persuasion, discourse, or the like, then shall he find it prepared to his hands in those authors which write in that manner. But the excess of this is so justly contemptible, that as Hercules, when he saw the image of

⁶⁵ Patent, any warrant issued by the sovereign, and conferring a title or privilege on a subject. Limned book, illustrated book. Though it hath large flourishes, though it is much ornamented : in the Latin translation, it is—"though it be decorated with flourishes of the pen, and flowers."

⁶⁶ Pygmalion fell in love with a statue of a woman that he had made. At his request Venus endowed the statue with life. To admire a frivolous book is like falling in love with lifeless stone.

⁶⁷ Sensible, striking the senses. Plausible, such as attracts the admiration of readers. The literal meaning of the word is to attract or deserve applause : and it is frequently used in this sense by Bacon.

⁶⁸ Period, conclusion. Attractiveness of style must not blind us to the necessity of strict proof.

⁶⁹ If a man be to have, &c., i.e. if a man have occasion to make use of his knowledge.

⁷⁰ Civil, p. 27, n. 46, with this passage cp. Bk. 2, xiii. 7.

Adonis,⁷¹ Venus' minion, in a temple, said in disdain, *You are no divinity*: so there is none of Hercules' followers in learning, that is, the more severe and laborious sort of inquirers into truth, but will despise those delicacies and affectations, as indeed capable⁷² of no divineness. And thus much of the first disease or distemper of learning.

5. The second⁷³ which followeth is in nature worse than the

⁷¹ *Adonis*, a beautiful youth beloved by Venus. *Hercules*, the strong man of Grecian mythology. Hence scholars who shrink from no labour in study are called 'Hercules' followers in learning.'

⁷² Capable of, containing.

⁷³ *The second*, supply 'distemper of learning.' In order to understand this section the student should bear in mind that the Scholastic Philosophy was, in the main, an application of the logic of Aristotle to the development and explanation of the doctrines of the Christian faith. This was its character on the whole. Occasionally we meet with a Schoolman who left the beaten track of theology: Roger Bacon, for instance, was as diligent and enthusiastic a votary of science as his more celebrated namesake. Cp. Green's *History of the English People*, vol. I., p. 259. But the Church discouraged scientific inquiry: and the great evil of Scholasticism was that it diverted men's minds from more useful studies. Cp. Hallam's *Middle Ages*, vol. iii., p. 432. We may distinguish certain periods in Scholasticism. The first of the Schoolmen was Erigena, who was born between 800 and 810. The only work of Aristotle with which he was acquainted was the Logic. His philosophy was that of the later Platonists: and his system is an attempt to reconcile theology with his philosophy by means of the rules of the Aristotelian logic. With him philosophy was only so far subject to theology, that the latter determined the former in all cases where the two diverged. He allowed himself full liberty of speculation on points which did not come within the sphere of theology. His writings were afterwards condemned by the Church. The ninth, tenth, and eleventh centuries were occupied with the great struggle between the Realists and the Nominalists, a struggle which gave the Church an opportunity of asserting a constantly increasing authority, since the various issues raised by the conflict had a distinct bearing on theological dogmas. The most conspicuous figure in the twelfth century is Abelard, who came into conflict with, and was condemned by the Church, for his fearless application of the Aristotelian dialectic to subjects which, according to the contention of the Church, were to be settled by authority. It was not until the thirteenth century that Scholasticism attained its full development and all philosophy was included in theology. This phenomenon was due to the introduction into Europe of the ethical, physical, and metaphysical treatises of Aristotle. Armed with these the Church was enabled to put forth an authoritative exposition of the truth on *all* subjects. The most eminent representative of this fully developed Scholasticism is

former : for as substance of matter is better than beauty of words, so contrariwise vain matter is worse than vain words : wherein it seemeth the reprehension of Saint Paul was not only proper for those times,

Thomas Aquinas. Thus, the history of Scholasticism displays a progressive limitation of the right to freedom of thought, until at last the right is abolished altogether. The last representative of the Scholastic method is the famous William of Ockham. When he appeared Scholasticism was doomed. In his works we see the human mind once more asserting its irrepressible claim to the right of freedom in speculation. Ockham was a revolutionist both in philosophy and politics. He employed his dialectic skill in attacking the main positions of the philosophy of Aquinas. He was scholastic in his method, but his philosophical ideas are those not of the past, but of succeeding generations. It is not then to be wondered at that the Schoolmen only succeeded in weaving a web of contentious metaphysics. When the mind has exhausted the *data* presented to it, if no fresh experience is forthcoming, it must either be idle, or return upon the same *data* from which everything of value has already been extracted, or else it must elaborate a philosophy based on its own fancies. The only *data* presented to the Schoolmen were the Christian dogmas and the doctrines of Aristotle. These were accepted on authority, and conclusions were drawn from them by syllogism. This was a task which was soon accomplished : and then the Schoolmen flew to a barren metaphysic, which was occupied mainly with subjects which do not admit of solution, such as the nature of the substance of the soul : whether the soul is immortal : whether God created the world in perfect freedom, or whether his action was determined by his character, &c. It is true that the Schoolmen discussed most of the metaphysical questions which have interested later students : but so had Aristotle before them, and the Schoolmen contributed little, if anything, to the solution of any one philosophical problem. Bacon gives the true reason of their failure—" Their wits were shut up in the cells of a few authors," and they had " no great quantity of matter." They did not even know Aristotle at first hand, but only through Arabian commentators. Science wants *data*: and a fruitful philosophy must rest on a wide and well-considered experience. Scholasticism failed because it had no experience, and because it had a bad method. This is the truth which it was the object of Bacon's life to impress upon the world. He says in the *Nov. Org.*, Bk. I. Aph. 121— "Subtilty of discussion and reasoning is too late and is useless when the principles of science have once been established : the only, or, at any rate, the principal time when subtlety is required is when we are weighing evidence and establishing principles. . . . Nature like Fortune has long hair in front, but she is bald behind." Roger Bacon gives the same preference to inductive over formal reasoning—and the general resemblance between Roger and Francis Bacon is very strong—see Hallam, *ibid.* The student will find an excellent sketch of the Scholastic philosophy in Milman's *Latin Christianity*, Bk. 14, ch. 3. For the scholastic character of Indian philosophy, see Duncker's *History of India*, Bk. v., ch.viii.

but prophetical for the times following; and not only respective⁷⁴ to divinity, but extensive to all knowledge: *Avoid profane novelties of terms, and oppositions of science falsely so called.* For he assigneth two marks and badges of suspected and falsified science: the one, the novelty and strangeness⁷⁵ of terms; the other, the strictness of positions,⁷⁶ which of necessity doth induce oppositions, and so questions and altercations. Surely, like as many substances in nature which are solid do putrify and corrupt into worms; so it is the property of good and sound knowledge to putrify and dissolve into a number of subtle, idle, unwholesome, and (as I may term them) vermiculate⁷⁷ questions, which⁷⁸ have indeed a kind of quickness and life of spirit, but no soundness of matter or goodness of quality. This kind of degenerate learning did chiefly reign amongst the schoolmen: who having sharp and strong wits, and abundance of leisure, and small variety of reading, but their wits being shut up⁷⁹ in the cells of a few authors (chiefly Aristotle their dictator)⁸⁰ as their persons were shut up in the cells of monasteries and colleges, and knowing little history, either of nature or time, did out of no great quantity of matter and infinite agitation of wit spin out unto us those laborious webs of learning which are extant in their books. For the wit and mind of man, if it work upon matter, which⁸¹ is the contemplation of the creatures⁸²

⁷⁴ Respective, having reference to.

⁷⁵ Strangeness of terms, cp. p. 39.

⁷⁶ Strictness of positions, dogmatic assertions. We should remember that the Schoolmen were not allowed to question the dogmas of theology, but were obliged to accept them on faith.

⁷⁷ Vermiculate, wriggling like a worm, intricate.

⁷⁸ Which have indeed, &c. A book which bristles with discussion appears to be full of life: but if the discussions are trivial, the book is worthless. For quickness, see p. 20, n. 99.

⁷⁹ Their wits being shut up, &c., their knowledge being confined to a few authors.

⁸⁰ Their dictator, the authority whom they followed blindly. The Dictator was a magistrate whom the Romans appointed on extraordinary emergencies, and who, so long as he held office, possessed absolute power. Dante, in the 'Divina Commedia' (A.D. 1300), calls Aristotle "the master of those that know." He represents him as sitting as head of "the philosophic family," and says that Plato and all the rest must look up to him.

⁸¹ Which, viz., working on matter. By working on matter, says Bacon, I mean studying nature.

⁸² Creatures, i.e. all created things. We now use the word to express living things. Worketh according to the stuff and is limited thereby, i. e. does not

of God, worketh according to the stuff and is limited thereby ; but if it work upon itself,⁸⁸ as the spider worketh his web, then it is endless, and brings forth indeed cobwebs of learning, admirable for the fineness of thread and work, but of no substance or profit.

6. This same unprofitable subtlety or curiosity is of two sorts ; either in the subject itself that they handle, when it is a fruitless speculation or controversy (whereof there are no small number⁸⁴ both in divinity and philosophy), or in the manner⁸⁵ or method of handling transcend experience, but asserts such propositions only as are warranted by experience.

⁸⁸ *If it work upon itself*, i.e. if it employ itself merely with ideas of its own creation, and not about ideas which are abstracted from actual facts.

⁸⁴ *Whereof there are no small number*. Bacon regarded all metaphysical speculation as 'fruitless,' because not productive of any material result. The following questions, which are discussed by Thomas Aquinas, may serve as more glaring instances of the 'fruitless speculation' of the Schoolmen :—Whether all angels belong to the same genus. Whether demons are evil by nature, or by will. Whether they can change one substance into another. Whether Christ possessed merit in the very instant of his conception, or not till the following instant. Whether an angel can move from one point to another without passing through the intermediate space. Whether, if Adam had not sinned, exactly equal numbers of males and females would have been born. These and innumerable questions of the same kind are discussed and settled by Aquinas in the most solemn and unhesitating fashion.

⁸⁵ The method of the Schoolmen is correctly described in the text. Generally each inquiry begins with a statement of the different points which are to be elucidated. To each of these is allotted a separate paragraph. One or more reasons are alleged in favour of the opinion which the author means to reject. Some objection, generally founded on a quotation from some conclusive authority, is then stated against it, and then the author gives his own opinion in what is called the *conclusion*, and proceeds to refute one by one the arguments he has adduced on the other side. It is impossible not to recognise in this procedure the influence of a system of oral disputation. E. See Bk. 2 xvii, 8. where the substance of this section is repeated. Cp. Ueberweg *History of Philosophy*, Vol. I., p. 432. 'The method of the Schoolmen consisted first in connecting the doctrines to be expounded, with a commentary on some work chosen for the purpose. The contents of this work were divided and subdivided, until the separate propositions, of which it was composed, were reached. Then these were interpreted, questions were raised with reference to them, and the grounds for affirming and for denying them were presented. Finally the conclusion was announced,' &c. Bacon means to say that the truth or falsehood of a proposition cannot be determined without taking into account the limitations imposed by the other propositions of the science, of which it forms a part. The proposition that 'wages tend to an equality' is false, absolutely : it is true in the place which it occupies in an English treatise on economy.'

of a knowledge, which amongst them was this ; upon every particular position or assertion to frame objections, and to those objections, solutions ; which solutions⁸⁶ were for the most part not confutations, but distinctions : whereas indeed the strength of all sciences is, as the strength of the old man's faggot,⁸⁷ in the bond. For the harmony of

⁸⁶ *Which solutions, &c.* Milman says of Thomas Aquinas, that "his luxury of distinction and definition, if it be not a contradiction, his imaginative logic is inexhaustible." Again, talking of Scotus' vindication of the grace of God, he says that, "Scotus draws a distinction (he saves everything by a distinction which his subtlety never fails to furnish) between the absolute and secondary will of God." Again, talking of the controversy between the Scotists and Thomists, he says that "one defines away necessity till it ceases to be necessity, the other fetters free-will till it ceases to be free." The following may serve as an instance of a "solution" which in reality consists merely of formal distinctions. Thomas Aquinas thus proves that the beginning of the world in time is not philosophically demonstrable. "It is said that the cause must precede the effect : but we must draw a distinction between efficient causes and perfect causes. The *dictum* applies to the former, but not to the latter. God is a perfect cause, and could by his almighty power create an eternal world. Again, that the world was created from nothing does not prove its temporal origin. Here we must draw a distinction between temporal succession, and order. "From nothing" means "after nothing," but not necessarily in the sense of temporal succession. Again it is said, that we cannot pursue the chain of causation to infinity, but that at some point we must come to that which is uncaused. Those who urge this objection overlook the distinction between intermediary causes and the absolute cause." The same method of demonstration was employed generally by the Schoolmen both in theology and physics. In the sphere of physics their formal distinctions were generally supported by quotations from Aristotle. Now, Aristotle's physical speculations are peculiarly fanciful, and the student will easily understand that this method would never enable the Schoolmen to make any progress in scientific discovery. At the best, their method was but an analysis, according to the rules of logic, of abstract terms and popular generalizations. So long as the terms which men use are an inadequate or incorrect expression of facts, mere formal consistency in reasoning is simply consistency in error. Moreover, *progress* was impossible. No new ideas were got by fresh examinations of nature, consequently the Schoolmen were perpetually engaged with the same questions. Another circumstance which hindered progress was that they were not allowed to question their premisses. In the sphere of theology they were bound by the dogmas of the Church : in the sphere of physics, 'Aristotle was their dictator.' Cp. Whewell, 'On the Character of Commentators.' *History of the Inductive Sciences*, Vol. I., Bk. iv., ch. ii. See below, § 12.

⁸⁷ *The old man's faggot.* See *Aesop's Fables*, 52. It is impossible to break sticks when they are tied in a large bundle, but each can be broken separately,

a science, supporting each part the other, is and ought to be the true and brief confutation and suppression of all the smaller sort of objections. But, on the other side, if you take out every axiom,⁸⁸ as the sticks of the faggot, one by one, you may quarrel with them and bend them and break them at your pleasure : so that as was said of Seneca, *He breaks up the weight of the matter by his verbal subtleties*, so a man may truly say of the schoolmen, *They break up the solidity and coherency of the sciences by the minuteness of their questions.* For were it not better for a man in a fair⁸⁹ room to set up one great light, or branching candle-stick of lights, than to go about with a small watch candle⁹⁰ into every corner ? And such is their method, that rests not so much upon evidence of truth proved by arguments, authorities, similitudes, examples, as upon particular confutations and solutions of every scruple, cavillation,⁹¹ and objection ; breeding for the most part one question as fast as it solveth another ; even as in the former resemblance,⁹² when you carry the light into one corner, you darken the rest ; so that the fable and fiction of Scylla seemeth to be a lively image of this kind of philosophy or knowledge ; which was transformed into a comely virgin for the upper parts ; but then *there were barking monsters all about her loins* : so the generalities⁹³ of the schoolmen are for a while good

if taken out of the bundle. So the strength of a science lies '*in the bond*' i.e. in the consistency of each part with every other. See above, n. 85 Cp. Bk. 2, viii. 5.

⁸⁸ *Axiom*, proposition.

⁸⁹ *Fair*, large.

⁹⁰ *Watch candle*, a small light kept burning in a room at night. Science should take a comprehensive view of the whole extent of a subject, such as a brilliant light gives us of a large room.

⁹¹ *Cavillation*, quibble, captious objection.

⁹² As in the former resemblance, to take the comparison which we took above, l. 9. In the *Interpretation of Nature*, when he is condemning the science of his day, Bacon repeats the comparison which occurs below. "The strange fiction of the poets of the transformation of Scylla seemeth to be a lively emblem of this philosophy and knowledge: a fair woman upwards in the parts of show, but when you come to the parts of use and generation, Barking Monsters; for no better are the endless distorted questions, which ever have been, and of necessity must be, the end and womb of such knowledge." It must always be borne in mind that, futile as the speculations of the Schoolmen appear in the light of modern science, still we have to thank them for maintaining an intellectual activity through ages in which all but themselves were sunk in ignorance.

⁹³ *Generalities*, generalizations.

and proportionable ;⁹⁴ but then when you descend into their distinctions and decisions,⁹⁵ instead of a fruitful⁹⁶ womb for the use and benefit of man's life, they end in monstrous altercations and barking⁹⁷ questions. So as it is not possible but this quality⁹⁸ of knowledge must fall under popular contempt, the people being apt to contemn truth upon occasion of controversies and altercations, and to think they are all out of their way which never meet⁹⁹ ; and when they see such digladiation¹ about subtleties, and matter of no use or moment, they easily fall upon that judgement of Dionysius of Syracusa, *Those are the words of old men, who have nothing to do.*

7. Notwithstanding, certain it is that if those schoolmen to their great thirst of truth and unweared travail of wit had joined variety and universality of reading and contemplation, they had proved excellent lights, to the great advancement of all learning and knowledge ; but as they are, they are great undertakers indeed, and fierce with dark keeping.² But as in the inquiry of the divine truth, their pride inclined to leave the oracle³ of God's word, and to vanish in the mixture of their own inventions ; so in the inquisition of nature, they ever left the oracle of God's works,⁴ and adored the deceiving and deformed images which the unequal⁵ mirror of their own minds, or a

⁹⁴ Proportionable, comprehensive enough.

⁹⁵ Distinctions and decisions, see p. 46, n. 86.

⁹⁶ Instead of a fruitful, &c. The student should notice the stress which Bacon lays on the proposition, that all science is worthless, which is not productive of material benefits to mankind.

⁹⁷ Barking, loud. It is mere noise.

⁹⁸ Quality, kind.

⁹⁹ They are all out of their way which never meet, people who never agree must all be in error.

¹ Digladiation, obstinate fighting.

² With dark keeping, with being kept in the dark—'shut up in the cells of a few authors,' p. 44, n. 79. He alludes to the effect of darkness on the temper of animals.

³ To leave the oracle, &c., as for instance in the discussion of such subjects as I have alluded on p. 45, n. 84.

⁴ The oracle of God's works, called 'the book of God's works,' p. 14. l. i.

⁵ Unequal, uneven. Instead of deriving their ideas of things from a direct study of things themselves, they contented themselves with their own erroneous ideas of things. The idea which a prejudiced mind forms of a thing no more resembles the reality, than does an image reflected in a mirror with a rough or broken surface. See below, v. 6.

few received authors or principles, did represent unto them. And thus much for the second disease of learning.

8. For the third vice or disease of learning, which concerneth deceit or untruth, it is of all the rest the foulest ; as that which doth destroy the essential form⁶ of knowledge, which is nothing but a representation of truth : for the truth⁷ of being and the truth of knowing are one, differing no more than the direct beam and the beam reflected. This vice therefore brancheth itself into two sorts ; delight in deceiving and aptness to be deceived ; imposture and credulity ; which, although they appear to be of a diverse nature, the one seeming to proceed of cunning and the other of simplicity, yet certainly they do for the most part concur : for, as the verse noteth,

Avoid inquisitive men, for they are babblers,

an inquisitive man is a prattler ; so upon the like reason a credulous man is a deceiver : as we see it in fame,⁸ that he that will easily believe rumours, will as easily augment rumours and add somewhat to them of his own ; which Tacitus wisely noteth, when he saith, *Those who are prone to invent are also prone to believe* : so great an affinity hath fiction and belief.

9. This facility of credit and accepting or admitting things weakly authorized or warranted is of two kinds, according to the subject : for it is either a belief of history, or, as the lawyers speak,⁹ matter of fact ; or else of matter of art and opinion.¹⁰ As to the former, we see the experience and inconvenience of this error in ecclesiastical history ; which hath too easily received and registered reports and narrations of miracles wrought by martyrs, hermits, or monks of the desert, and other holy men, and their relics, shrines, chapels, and images : which though they had a passage¹¹ for a time by the ignorance of the people, the superstitious simplicity of some, and the politic toleration of others, holding them but as divine poetries¹² ; yet after a period of

⁶ *The essential form*, the very nature and life of knowledge.

⁷ *For the truth*, i. e. truth is to reality as the reflection is to the object reflect- ed. We have attained to truth when our subjective ideas about things and their relations correspond exactly to the things themselves and their objective relations.

⁸ *As we see it in fame*, as we see in the case of rumours.

⁹ Speak, say.

¹⁰ *Matter of art and opinion*, see p. 51, ll. 1—3.

¹¹ *They had a passage*, they were believed. On this subject, see Gibbon, ch. 28.

¹² *Divine poetries*, religious fictions.

time, when the mist began to clear up, they¹³ grew to be esteemed but as old wives' fables, impostures of the clergy, illusions of spirits, and badges of Antichrist,¹⁴ to the great scandal and detriment of religion.

10. So in natural history, we see there hath not been that choice and judgement used as ought to have been; as may appear in the writings of Plinius, Cardanus, Albertus, and divers of the Arabians,¹⁵ being fraught with much fabulous matter, a great part not only untried,¹⁶ but notoriously untrue, to the great derogation of the credit of natural philosophy with the grave and sober kind of wits: wherein the wisdom and integrity of Aristotle is worthy to be observed; that, having made so diligent and exquisite¹⁷ a history of living creatures, hath mingled it sparingly with any vain or feigned matter: and yet on the other side hath cast all prodigious narrations, which he thought worthy the recording,¹⁸ into one book: excellently discerning that matter of manifest truth, such whereupon observation and rule was to be built, was not to be mingled or weakened with matter of doubtful credit; and yet again, that rarities and reports that seem incredible are not to be suppressed or denied to the memory of men.¹⁹

¹³ *They*, p. 27, n. 50.

¹⁴ *Antichrist*, the spirit of evil; literally, the opponent of Christ.

¹⁵ *Pliny* was a Roman writer on Natural History, A.D. 23—79.

Cardanus, a physician of Milan, who wrote on Natural History, Medicine, and Astrology.

Albertus also wrote on Natural History. He was Bishop of Ratisbone, and 'on account of his learning was called 'The Great.' He was born A.D. 1193.

The Arabians, see Gibbon, ch. 52, and Whewell's *History of the Inductive Sciences*. Bk. iv., ch. 2. They became acquainted with the philosophy and science of the Greeks in the eighth century after Christ. It was through them that the Schoolmen became acquainted with the physical and metaphysical works of Aristotle: and their commentaries on the works of Aristotle, especially those of Ibn-Raschid, known in Europe as Averroes, had a considerable influence on the Scholastic philosophies. In philosophy, however, the Arabians confined themselves to explaining and developing the doctrines of Aristotle: it was in the sphere of science that they displayed originality. To the science of medicine especially, and also to the sciences of chemistry and algebra, they made considerable contributions.

¹⁶ *Untried*, unverified.

¹⁷ *Exquisite*, p. 39, n. 47.

¹⁸ *Worthy the recording*, p. 26. n. 42. This record of extraordinary narrations, which the author had heard, is not really by Aristotle. With this passage cp. Bk. 2, i. 3.

¹⁹ *To the memory of men*, i.e. to posterity.

11. And as for the facility of credit which is yielded to arts and opinions, it is likewise²⁰ of two kinds; either when too much belief is attributed to the arts themselves, or to certain authors in any art. The sciences themselves, which have had²¹ better intelligence and confederacy with the imagination of man than with his reason, are three in number; astrology, natural magic, and alchemy²²: of which sciences, nevertheless, the ends or pretences are noble. For astrology pretendeth to discover that correspondence or concatenation²³ which is between the superior globe and the inferior: natural magic pretendeth to call and reduce²⁴ natural philosophy from variety of speculations to the magnitude of works: and alchemy

²⁰ Likewise, just as the third fault was made up of the two faults of credulity and deceit, p. 49, l. 8.

²¹ Which have had, &c., which are rather fanciful than rational.

²² For natural magic and alchemy, see Bk. 2, viii. 3.

Astrology, Bk. 2, vii. 4, n. 21. The so-called science of Astrology came originally from the Chaldeans. The chief power which astrologers claimed was that of prediction. It was thought that the heavenly bodies influenced the course of natural phenomena: and that each of the stars had a different influence according to its composition. Jupiter and Venus were compounded of warm and moist, and their influence was good, since heat and moisture are creative elements. On the other hand, the influence of Mars and Mercury was bad, since the one was dry, and the other was changeable. It was thought, moreover, that each of the signs of the zodiac presides over a special part of the body: and that a child's fortune in life could be predicted from the sign of the zodiac which rose at its birth. It was thought also that an undertaking would prosper according to the season in which it was undertaken. This last belief was held by Bacon—"We must not," he says, "altogether reject the choice of times, though we should place less reliance on it than on predictions. For we see that in sowing, and planting, and grafting, an observation of the age of the moon is a thing not altogether to be despised." Bacon rejected the grosser follies of Astrology. "Astrology," he says, "is so full of superstition, that we can scarcely find anything sound in it"—but he could not shake off the belief in it altogether. He says that it may enable us to predict not only natural phenomena, such as frosts, floods, earthquakes, &c., but wars, seditions, schisms, transmigrations of peoples, and, in short, all commotions or great revolutions of things, natural as well as civil. See Fowler's *Introd. to Nov. Org.*, p. 26, and Whewell's *History of the Inductive Sciences*, vol. 1, Bk. iv., ch. 3.

²³ Concatenation, connection.

²⁴ To call and reduce, &c., cp. Bk. 2, i. 6. 'To reduce' is used in its literal sense, and is equivalent to 'to bring back.' Cp. 'induceth,' Bk. 2. vii. 5. In the *De Aug.* Bacon says "that the proper function of natural magic is to apply the knowledge of hidden causes to the production of wonderful results." See below.

pretendeth to make separation of all the unlike parts of bodies which in mixtures of nature²⁵ are incorporate. But the derivations and prosecutions²⁶ to these ends, both in the theories and in the practices, are full of error and vanity; which the great professors themselves have sought to veil over and conceal by enigmatical writings,²⁷ and referring themselves to auricular traditions²⁸ and such other devices, to save the credit of impostures.²⁹ And yet

Bk. 2, vii. 1, and 6. For the ground of Bacon's objections to the ordinary magic, see Bk. 2, viii. 3, n. 19. *Pretendeth, claims, professes.*

²⁵ *In mixtures of nature*, in substances as they exist in nature. He explains this in the *De Aug.* thus: "Alchemy professes to extract and eliminate the heterogeneous elements which are latent in substances, as they exist in nature, and to purify bodies which are impure, to set free those which are enchain'd, and to perfect those which are incomplete," i.e. Alchemy was engaged in the refining and transmuting of metals. See Bk. 2, viii. 3, n. 29 and 30, for Bacon's opinion as to the way in which transmutation can really be effected, and the futility of the means by which the alchemists sought to effect it.

²⁶ *Derivations and prosecutions*, the devices and the methods. Cp. Bk. 2, viii. 3: "In their propositions the description of the means is ever more monstrous than the pretence or end."

²⁷ *Enigmatical writings*, in the corresponding passage in the *De Aug.* Bacon says that alchemy is not taught in a straight-forward way, but is artificially fenced round with obscurities; cp. the *Filum Labyrinthi*, Ellis' and Spedding's Edn. vol. iii., p. 496. The alchemists published their more important discoveries, in *enigmatical writings*, i.e. in writings which the uninitiated could not understand. The alleged reason for this proceeding was 'for the avoiding of abuse in the excluded, and the strengthening of affection in the admitted,' i.e. to prevent the knowledge thus reserved from becoming known to and being misused by incapable persons, and to encourage those, to whom it was committed, to take more interest in it, by making them feel that they were entrusted with a valuable treasure. This however, says Bacon, though the alleged reason, was not the real one. They wrote enigmatically to hide their ignorance and fraud; for that, which they published enigmatically, was no less worthless and false, than that which they published openly. See Bk. 2, xvii. 5.

²⁸ *Referring themselves to auricular traditions*. This was another device of the alchemists, similar to that of 'enigmatical writing.' The pretext and real reason for the two were the same. They pretended that some of their discoveries were so important, that they were not even published enigmatically, but were *reserved for selected auditors*. The words *auricular tradition* mean 'teaching by word of mouth' (literally, 'delivery, i.e. teaching, to the ears') as opposed to books. *Referring themselves to*, having recourse to.

²⁹ *To save the credit of impostures*, to induce people still to believe in their impostures.

surely to alchemy this right is due, that it may be compared to the husbandman whereof Æsop makes the fable ; that, when he died, told his sons that he had left unto them gold buried under ground in his vineyard ; and they digged over all the ground, and gold they found none ; but by reason of their stirring and digging the mould about the roots of their vines, they had a great vintage the year following : so assuredly the search and stir to make gold hath brought to light a great number of good and fruitful inventions and experiments, as well for the disclosing of nature as for the use of man's life.

12. And as for the overmuch credit that hath been given unto authors in sciences, in making them dictators,³⁰ that their words should stand, and not consuls³¹ to give advice ; the damage is infinite that sciences have received thereby, as the principal cause that hath kept them low at a stay³² without growth or advancement. For hence, it hath comen, that in arts mechanical the first deviser comes shortest,³³ and time addeth and perfecteth ; but in sciences the first author goeth furthest, and time leeseth³⁴ and corrupteth. So we see artillery,³⁵ sailing, printing and the like, were grossly managed at the first, and by time accommodated and refined : but contrariwise the philosophies and sciences of Aristotle, Plato, Democritus,³⁶ Hippocrates, Euclides, Archimedes, of most vigour at the first and by time

³⁰ *Dictators*, p. 44, n. 80. *Stand*, maintain their position, be accepted without question.

³¹ *Consuls*, magistrates whose power was not absolute, but who voted in the Senate. The difference between a dictator and a consul is the difference between a despot and a member of Parliament.

³² *At a stay*, kept them from making progress. *Comen*, come. *En* was originally the termination of the participle in all strong verbs.

³³ *Comes shortest*, accomplishes least.

³⁴ *Leeseth*, loseth.

³⁵ *Artillery*, includes all the engines that have ever been devised for the discharge of missile weapons. The word now means 'cannon.' *Grossly*, unskilfully.

³⁶ *Democritus*, B.C. 460, a leader of the Atomistic school of philosophy in Greece. Bacon thought more highly of him than of any of the Greek philosophers, because he devoted himself more to the study of nature, and less to the elaboration of logical forms.

Hippocrates, B.C. 460, a well-known Greek physician, and writer on medicine.

Euclid, the geometrician. He lived in the fourth century B.C., but the exact date of his birth is unknown.

Archimedes, B.C. 287, a great astronomer, and discoverer in mathematics.

degenerate and imbased³⁷; whereof the reason is no other, but that in the former many wits and industries have contributed in one³⁸; and in the latter many wits and industries have been spent about the wit of some one, whom many times they have rather depraved than illustrated. For as water will not ascend higher than the level of the first springhead from whence it descendeth, so knowledge derived from Aristotle, and exempted from liberty of examination,³⁹ will not rise again higher than the knowledge of Aristotle. And therefore although the position be good, *While we are learning we should believe*, yet it must be coupled with this. *After we have learnt, we should judge*; for disciples do owe unto masters only a temporary belief and a suspension of their own judgement till they be fully instructed, and not an absolute resignation or perpetual captivity: and therefore, to conclude this point, I will say no more, but so let great authors have their due, as time, which is the author of authors,⁴⁰ be not deprived of his due, which is, further and further to discover truth. Thus have I gone over these three diseases of learning; besides the which there are some other rather peccant humours⁴¹ than formed diseases, which nevertheless are not so secret and intrinsic⁴² but that they fall under a popular observation and traducement,⁴³ and therefore are not to be passed over.

both pure and applied. He was a native of Syracuse, and lost his life in the storming of the city by the Romans, B.C. 212. It is told of him that, during the siege, he burned the enemies' ships in the harbour by reflections from a mirror.

³⁷ *Imbased*, corrupted. In the Latin translation it is—‘having lost much of their original splendour.’

³⁸ *In one*, to the same object.

³⁹ *Exempted from liberty of examination*, i.e. accepted on authority: as the doctrines of Aristotle were by the Schoolmen, see above p. 44, n. 80. Bacon means that time is wasted, if spent in making endless comments on one author. When we have learned all that an author has to say, we should leave him, and go on to fresh studies. Cp. “To go beyond Aristotle by the light of Aristotle is to think that a borrowed light can increase the original light from whom it is taken.” Bacon, *On the Interpretation of Nature*.

⁴⁰ *Time which is the author of authors*, cp. “Truth is the daughter of time.” Nov. Org., Bk. I. Aph. 84, cp. p. 55, § 1.

⁴¹ *Peccant humours*, unhealthy states. The word ‘humour’ denotes an unhealthy tendency, as opposed to a settled disease.

⁴² *Intrinsic*, used in its literal sense of ‘internal,’ ‘hidden from sight.’

⁴³ *Traducement*, p. 27, n. 49.

V. pp. 55—64.

Having considered the grosser blemishes which disfigure and bring discredit upon learning, Bacon now proceeds to consider its more superficial defects. Of these he enumerates eleven—

(i.) Men are too ready to accept ideas and beliefs, either because they are old, or because they are novel.

(ii.) It is generally thought that everything that is to be discovered must have been discovered long ago. Hence ensues a want of enterprise in science.

(iii.) It is commonly thought that, by a kind of 'natural selection,' those doctrines, which have survived to the present time, must be the soundest. In reality, the opposite of this is true. In the river of time the weightiest doctrines sink first.

(iv.) Arts and sciences have been formulated before the necessary *data* were obtained. Thus a false air of completeness has been given to knowledge.

(v.) The results of the different sciences have not been compared and co-ordinated. Hence individual sciences have not progressed as they might have done, because deprived of the light which other sciences might have thrown upon them.

(vi.) Students have placed such confidence in their own faculties that they have ventured to explain phenomena *a priori*, wanting the patience for a diligent study of nature.

(vii.) Men have come biassed to the study of nature, reading it in the light of preconceived ideas, and interpreting it in terms of their own philosophy.

(viii.) There has been a general impatience of difficulties. No satisfactory conclusions can be arrived at, when difficulties are passed over, instead of being solved.

(ix.) Writers have asserted as proved things which are not proved: whereas they ought in their writings to distinguish those principles, which are proved, from those which need further corroboration.

(x.) Students have neglected original research, and have been contented with simply editing the works of others.

(xi.) Men have mistaken the end of knowledge. The student should woo knowledge as a spouse, the fruit of whose womb shall be benefits for mankind.

Lastly, says Bacon, as I have not been sparing in my criticism of learning, I hope that due weight will be given to what I shall urge in its favour.

V. I. The first of these is the extreme affecting of two extremities: the one antiquity, the other novelty; wherein it seemeth the children of time do take after the nature and malice of the father.^{**} For as he devoureth his children, so one of them seeketh to devour and suppress the other; while antiquity envieth there should be new

^{**} *The father*, Bacon refers to the Greek myth, according to which Kronos, i.e. time, devoured his children as soon as they were born. The myth expressed the passage of time, which cannot be recalled. Bacon says that the children are imitating the father; the old days wishing to destroy the later, and the later to destroy the older.

additions, and novelty cannot be content to add but it must deface : surely the advice of the prophet is the true direction in this matter,⁴⁵ *Stand upon the ancient paths and see which is the straight and good road, and walk in it.* Antiquity deserveth that reverence, that men should make a stand thereupon and discover what is the best way ; but when the discovery is well taken,⁴⁶ then to make progression. And to speak truly, *Old times were the youth of the world.*⁴⁷ These times are the ancient times, when the world is ancient, and not those which we account ancient by a computation backward from ourselves.

2. Another error induced by the former is a distrust that any thing should be now to be found out, which the world should have missed and passed over so long time ; as if the same objection were to be made to time, that Lucian⁴⁸ maketh to Jupiter and other the heathen gods ; of which he wondereth that they begot so many children in old time, and begot none in his time ; and asketh whether they were become septuagenary,⁴⁹ or whether the law *Papia*,⁵⁰ made against old men's marriages, had restrained them. So it seemeth men doubt⁵¹ lest time is become past children and generation⁵² ; wherein contrariwise we see commonly the levity and unconstancy of men's judgements, which till a matter be done, wonder that it can be done ; and as soon as it is done, wonder again that it was no sooner done : as we see in

⁴⁵ A man, says Bacon, should dwell upon what has been already discovered, only until he has hit upon the path of further discoveries, which he must then follow.

⁴⁶ When the discovery is well taken, when he is certain that he has discovered it.

⁴⁷ Elsewhere Bacon says "that the present time is the real antiquity, for the world has now grown old. And, indeed, as we expect greater knowledge and riper judgment from an old man than from a youth, because of his wider experience, so it is natural to expect far greater things from our own age than from ancient times; for the world has now grown old, and has been enriched with countless experiments and observations."—*Nov. Org.* I. 84.

⁴⁸ *Lucian.* The remark is really Seneca's. It is a satire on the popular mythology.

⁴⁹ *Septuagenary*, too old to beget children : literally, seventy years old.

⁵⁰ *The Papian law.* The *Lex Papia Poppaea*, which was passed in the reign of Augustus, did not actually forbid old men to marry. Its object was to induce all men, who had not reached a certain age, to marry, by granting them political privileges.

⁵¹ *Doubt*, fear.

⁵² *Past children and generation*, past producing children, i. e. new discoveries.

the expedition of Alexander into Asia, which at first was prejudged as a vast and impossible enterprise ; and yet afterwards it pleaseth Livy to make no more of it than this, *He simply ventured to despise idle fears.* And the same happened to Columbus⁵³ in the western navigation. But in intellectual matters it is much more common ; as may be seen in most of the propositions of Euclid ; which till they be demonstrated, they seem strange to our assent⁵⁴ ; but being demonstrated, our mind accepteth of them by a kind of relation⁵⁵ (as the lawyers speak)⁵⁶ as if we had known them before.

3. Another error, that hath also some affinity with the former, is a conceit that of former opinions or sects after variety and examination⁵⁷ the best hath still prevailed and suppressed the rest ; so as if a man should begin the labour of a new search, he were but like to light upon somewhat formerly rejected, and by rejection brought into oblivion : as if the multitude, or the wisest for the multitude's sake, were not ready to give passage⁵⁸ rather to that which is popular and superficial, than to that which is substantial and profound ; for the truth is, that time seemeth to be of the nature of a river or stream,

⁵³ Columbus, writing in 1503 to Ferdinand and Isabella, says—"I was seven years at your court, and for seven years I was told that my plan was an absurdity : and now the very tailors ask leave to go to discover new countries." E.

⁵⁴ *They*, p. 27, n. 50. *Seem strange to our assent*, i.e. we hesitate to assent to them.

⁵⁵ *Relation*, a technical term in law, denoting that effect is given to an action from a date preceding that on which it was performed. For example, letters of administration, though issued after a man's decease, take effect from the day of his death. In the case of simple truths, Bacon says, we appear to ourselves to have known them before the time at which we actually acquired them.

⁵⁶ *Speak*, p. 49, n. 9.

⁵⁷ *After variety and examination*, i.e. when a number of different opinions have been propounded and examined. Cp. *The Interpretation of Nature*, "It is sensible to think that when men first enter into search and inquiry, according to the several frames and compositions of their understanding they light upon different conceits, and so all opinions and doubts are beaten over, and then men having made a taste of all wax weary of variety and so reject the worst and hold themselves to the best." Then, after repeating the metaphor of the river, Bacon says : "The state of knowledge is ever a Democracie, and that prevaleth which is most agreeable to the senses and conceits of people." Still always.

⁵⁸ *To give passage to*, to accept. Cp. p. 49, n. 11.

which carrieth down to us that which is light and blown up,⁵⁹ and sinketh and drowneth that which is weighty and solid.

4. ⁶⁰Another error, of a diverse nature from all the former, is the over-early and peremptory reduction of knowledge into arts and methods ; from which time commonly sciences receive small or no augmentation. But as young men, when they knit and shape perfectly, do seldom grow to a further stature ; so knowledge, while it is in aphorisms and observations, it is in growth : but when it once is comprehended in exact methods⁶¹ it may perchance be further polished and illustrate⁶² and accommodated for use and practice ; but it increaseth no more in bulk and substance.

5. Another error which doth succeed that which we last mentioned, is, that after the distribution of particular arts and sciences, men have abandoned universality, or *first philosophy* : which cannot but cease⁶³ and stop all progression. For no perfect discovery⁶⁴ can be made upon a flat or a level ; neither is it possible to discover the more

⁵⁹ *Blown up*, filled with air. This image of a river is a false analogy which Bacon often employs. Cp. *Essay*. 53 : "Fame is like a river that beareth up things light and swollen, and drowns things weighty and solid."

⁶⁰ Cp. *The Interpretation of Nature* : "Men have used of a few observations upon any subject to make a solemn and formal art, by filling it up with discourse, accommodating it with some circumstances and directions to practice, and digesting it into method, whereby men grow satisfied and secure, as if no more inquiry were to be made of that matter." In Bacon's opinion the most heinous offence which a man could commit was to assert a proposition, which he had not verified. Such a man 'anticipated nature' instead of 'interpreting it.' See Bk. 2, xvii. 6, *Peremptory, arbitrary.*

Knit, reach their full strength.

⁶¹ *Methods*, By a *method* Bacon means a formal treatise professing to contain an exhaustive exposition of a subject, as opposed to the exposition of a subject in aphorisms, which are professedly imperfect, and valuable rather as suggestions than as dogmas. See *Nov. Org.*, I., 86.

⁶² *Illustrate*, for this form of the participle, cp. *accumulate*, p. 24, l. 5. *Demonstrate*, p. 57, l. 6, &c.

⁶³ *Cease*, used transitively. For an explanation of this paragraph, see Bk. 2, v. 2, and vii. 3.

⁶⁴ *For no perfect discovery, &c.* In the Latin translation it is "Extensive views can be obtained only from towers, or high places" : and after the words "*to a higher science*," p. 59, l. 2, the Latin adds "as to a watch-tower." In the *Interpretation of Nature*, he says : "Sciences distinguished (*i.e.* individual sciences) have a dependence upon universal knowledge to be augmented and rectified by the superior light thereof ;" and he gives a curious instance of this. "The opinion of Copernicus in Astronomy," he says, "which astronomy itself cannot

remote and deeper parts of any science, if you stand but upon the level of the same science, and ascend not to a higher science.

6. Another error hath proceeded from too great a reverence, and a kind of adoration of the mind and understanding of man ; by means whereof, men have withdrawn themselves too much from the contemplation of nature, and the observations of experience, and have tumbled up and down in⁶⁸ their own reason and conceits. Upon these intellectualists,⁶⁹ which are notwithstanding commonly taken for the most sublime and divine philosophers, Heraclitus gave a just censure, saying, *Men sought truth in their own little worlds,⁷⁰ and not in the great and common world* ; for they disdain to spell, and so by degrees to read in the volume of God's works⁷¹ : and contrariwise by continual meditation and agitation of wit do urge and as it were invocate their own spirits to divine and give oracles unto them, whereby they are deservedly deluded.

7. Another⁷² error that hath some connexion with this latter is, that men have used⁷³ to infect their meditations, opinions, and doctrines, with some conceits which they have most admired, or some sciences which they have most applied⁷⁴ ; and given all things else a

correct because it is not repugnant to any of the appearances, yet natural philosophy doth correct." Cp. Bk. 2, ix. 1.

⁶⁵ *Tumbled up and down in*, have become confused among. See notes on iv. 7, where the substance of this paragraph is repeated.

⁶⁶ *Intellectualists*, Bacon coins the word to express those who contemplate only the creations of their own minds.

⁶⁷ *In their own little worlds*, in the microcosm of their own minds.

⁶⁸ *The volume of God's works*, p. 14, n. 57. In the *Interpretation of Nature* Bacon speaks of the felicity wherewith God hath blessed an humility of mind, such as rather laboureth to spell and so by degrees to read in the volumes of his creatures (p. 44, l. 21), than to solicit and urge and as it were to invocate a man's own spirit (mind) to divine and give oracles unto him. For the metaphor of *spelling*, cp. our expression 'The A B C of a Subject.'

⁶⁹ With this section cp. Buckle's *History of Civilisation*, vol. ii., p. 289 where, in illustrating the influence of theological prejudice upon writers of history, the author speaks of "a general law of the mind, by which those who have any favourite profession, are apt to exaggerate its capacity : to explain events by its maxims, and, as it were, to refract through its medium the occurrences of life."

⁷⁰ *Have used*, have been accustomed. Cp. p. 28, l. 4.

⁷¹ *Applied*, studied.

tincture according to them, utterly untrue and unproper. So hath Plato⁷² intermingled his philosophy with theology, and Aristotle with logic; and the second school of Plato, Proclus and the rest, with the mathematics. For these were the arts which had a kind of primogeniture with them⁷³ severally. So have the alchemists⁷⁴ made a philosophy out of a few experiments of the furnace; and Gilbertus⁷⁵

⁷² *Plato*, the same charge is brought against Plato in the *Novum Organum*, Bk. 1, Aph. 96, in which passage also, the same charges, as here, are made against Aristotle and Proclus. He refers to Plato's mythological theory of "ideas," or archetypes of natural objects, supposed to exist in a supra-sensible world. See Bk. 2, vii. 5, n. 26. In the dialogue called '*The Symposium*,' the surroundings of the theory are specially mythological. Plato was also fond of the theologian's argument from final causes.

Aristotle was fond of viewing natural phenomena as exemplifications of his metaphysical distinctions. The seed and the tree for instance exemplify "potentia" and "actuality." See Bk. 2, xiv. 7, n. 24. Aristotle ought to have kept distinct the *logical* question, What is the meaning of the terms actuality and potentia? and the *physical* question, By what process is the tree, as a matter of fact, developed out of the seed? His physical treatises abound in abstract discussions on the impossibility of motion in empty space: the absolute distinction of light and heavy, and so on. He shows deductively that outside the sphere of our world nothing can exist. He proves *a priori* how many kinds of animals there can be, &c. See Lange, *History of Materialism*, Bk. I, ch. iii. Cp. below Bk. 2, v. 2, n. 41; and xiv. 7, and vii. 7, n. 75. It is only fair to Aristotle to remember that, as he lived before the age of physical science, his task was not so much to *explain* the world as to *conceive* it. The most elementary ideas of physics were not defined in his time.

The second school of *Plato*, i.e. the Neo-Platonists, the last representatives of ancient philosophy. The doctrines of *Plato* and the vaguer traditions of Pythagoreanism, coming into contact with the ideas of the East, produced the philosophy of Neo-Platonism, the chief characteristic of which is an extravagant mysticism.

⁷³ Which had a kind of primogeniture with them, of which they were fondest. The Latin has "Which they used to fondle as if they had been their first-born children."

⁷⁴ The alchemists, see Bk. 2, viii. 3.

⁷⁵ *Gilbertus*, cp. *Nov. Org.*, I. 54. Bacon means to say that he tried to explain by magnetism phenomena which it would not account for. For instance, he explained the phenomena of gravitation as cases of magnetism. William Gilbert (1540—1603), Court Physician to Queen Elizabeth, and author of the celebrated treatise '*On the Magnet*', was, according to Fowler, the real founder of the sciences of Electricity and Magnetism. Elsewhere Bacon praises him for his industry and method: though he justly censures him for endeavouring to build a universal philosophy upon so narrow a basis. E. See also Whewell's *Philosophy of Discovery*, ch. xiv., § 7.

our countryman hath made a philosophy out of the observations of a loadstone. So Cicero, when, reciting the several opinions of the nature of the soul, he found a musician that held the soul was but a harmony, saith pleasantly,⁷⁶ *This man is faithful to his art.* But of these conceits Aristotle speaketh seriously and wisely when he saith, *Men, who only take a few things into consideration, find it easy to give an opinion.*

8. Another error is an impatience of doubt, and haste to assertion without due and mature suspension of judgement. For the two ways of contemplation are not unlike the two ways of action⁷⁷ commonly spoken of by the ancients : the one plain and smooth in the beginning, and in the end impassable ; the other rough and troublesome in the entrance, but after a while fair and even : so it is in contemplation ; if a man will begin with certainties, he shall end in doubts ; but if he will be content to begin with doubts, he shall end in certainties.

9. Another error is in the manner of the tradition⁷⁸ and delivery of knowledge, which is for the most part magistral⁷⁹ and peremptory, and not ingenuous and faithful ; in a sort as may be soonest believed and not easiest examined. It is true that in compendious treatises for practice that form is not to be disallowed : but in the true handling of knowledge, men ought not to fall either on the one side into the vein of Velleius⁸⁰ the Epicurean, *Fearing nothing so much as that he might seem to be in doubt about anything*, nor on the other side into Socrates his⁸¹ ironical doubting of all things ; but to propound things sincerely with more or less asseveration, as they stand in a man's own judgement proved more or less.

⁷⁶ Pleasantly, wittily.

⁷⁷ Two ways of action, cp. two sayings quoted by Xenophon, "Do not aim at ease, lest you meet with discomfort," and "The gods sell us all good things for labour."

⁷⁸ The manner of the tradition, the way of communicating knowledge, cp. p. 9, n. 37. Cp. *The Interpretation of Nature* : "He that delivereth knowledge desireth to deliver it in such form as may be soonest believed, &c. . . . Glory (i.e. pride) maketh the author not to lay open his weakness."

⁷⁹ Magistral, after the fashion of a master, whose word is not to be disputed.

⁸⁰ Velleius, Bacon is referring to Cicero's treatise on the Nature of the Gods. The treatise is in the form of a discussion in which Velleius takes part. Authors, says Bacon, should avoid the two extremes of dogmatism and scepticism.

⁸¹ Socrates his. The old form of the genitive.

Ironical doubting, The word 'irony' as applied to Socrates means 'self-depreciation.' Socrates wrote nothing, and established few positive conclusions.

10. Other errors there are in the scope that men propound to themselves, whereunto they bend their endeavours; for whereas the more constant and devote⁸² kind of professors of any science ought to propound to themselves to make some additions to their science, they convert their labours to aspire to certain second prizes: as to be a profound interpreter or commenter, to be a sharp champion or defender, to be a methodical compounder⁸³ or abridger, and so the patrimony of knowledge cometh to be sometimes improved, but seldom augmented.

11. But the greatest error of all the rest is the mistaking or misplacing of the last or furthest⁸⁴ end of knowledge. For men have entered into a desire of learning and knowledge, sometimes upon a natural curiosity and inquisitive appetite; sometimes to entertain their minds with variety and delight; sometimes for ornament and reputation; and sometimes to enable them to victory of wit and contradiction; and most times for lucre and profession⁸⁵; and seldom sincerely to give a true account of their gift of reason, to the benefit and use of men: as if there were sought in knowledge a couch whereupon to rest a searching and restless spirit; or a terrace for a wandering and variable mind to walk up and down with a fair prospect; or a tower of state⁸⁶ for a proud mind to raise itself upon; or a fort or

It was his custom to profess entire ignorance of a subject and to ask some one for an explanation of it. This explanation he then criticised, and by a process of cross-examination showed that the explanation which he had received was either insufficient or incorrect. His chief subject of discussion was the meaning of general names, specially those of moral philosophy. Socrates thus performed the essential service of showing men their ignorance, and putting them in the way of right reasoning. Our reasoning will never be of any value, so long as we can attach no definite meaning to the terms which we employ.
Cp. p. 24, n. 29 and Bk. 2, xiii. 4, n. 21.

⁸² Devote, p. 58, n. 62.

⁸³ Compounder, one who makes an analysis, or abstract, of a book.

⁸⁴ Furthest, ultimate.

⁸⁵ Profession, means of livelihood.

To give a true account, &c., cp. p. 48, l. 2, p. 63, l. 2, and ll. 22—25.
Cp. *The Interpretation of Nature*: “The true end, scope, or office of knowledge I have set down to consist not in any plausible, delectable, reverend, or admired discourse, or any satisfactory arguments, but in effecting and working, and in discovery of particulars not revealed before for the better endowment and help of man’s life.”

⁸⁶ A tower of state, a lofty tower.

commanding⁸⁷ ground for strife and contention ; or a shop for profit or sale ; and not a rich storehouse for the glory of the Creator and the relief of man's estate.⁸⁸ But this is that which will indeed dignify and exalt knowledge, if contemplation and action may be more nearly and straitly⁸⁹ conjoined and united together than they have been ; a conjunction⁹⁰ like unto that of the two highest planets, Saturn, the planet of rest and contemplation, and Jupiter, the planet of civil society and action. Howbeit, I do not mean, when I speak of use and action, that end before-mentioned of the applying of knowledge to lucre and profession ; for I am not ignorant how much that diverteth and interrupteth the prosecution and advancement of knowledge, like unto the golden ball thrown before Atalanta,⁹¹ which while she goeth aside and stoopeth to take up, the race is hindered,

She goes aside from her course, and picks up the rolling gold.

Neither is my meaning, as was spoken⁹² of Socrates, to call philosophy down from heaven to converse upon the earth ;⁹³ that is, to leave natural philosophy aside, and to apply knowledge only to manners⁹⁴ and policy. But as both heaven and earth do conspire and contribute to the use and benefit of man ; so the end ought to be, from both⁹⁵ philosophies to separate and reject vain speculations, and whatsoever is empty and void, and to preserve and augment whatsoever is solid and fruitful : that knowledge may not be as a courtesan, for pleasure and vanity only, or as a bond-woman, to acquire and gain to her master's use ; but as a spouse, for generation, fruit, and comfort.

i2. Thus have I described and opened, as by a kind of dissection,

⁸⁷ *Commanding*, a commanding position is one which gives the holder of it any advantage.

⁸⁸ *Estate*, condition.

⁸⁹ *Straitly*, closely.

⁹⁰ Cp. p. 51, n. 22.

⁹¹ *Atalanta*, the daughter of a king of Bœotia, who refused to marry any one who had not beaten her in a foot race. Milanion obtained her by a stratagem. He obtained from Venus some golden apples, which, when he was pressed in the race, he threw down, from time to time, before the maiden. She could not resist the temptation to stop and pick them up, and so lost the race. Similarly, the student who goes aside from the path of knowledge, for the sake of lucre, will make but slow progress.

⁹² *Spoken*, p. 57, n. 56.

⁹³ *To converse upon the earth*, i.e. to occupy itself with human affairs.

⁹⁴ *Manners*, p. 24, n. 28.

⁹⁵ *Both philosophies*, i.e. both physics and moral and political philosophy.

those peccant humours⁹⁶ (the principal of them) which have not only given impediment to the proficience of learning, but have given also occasion to the traducement⁹⁷ thereof: wherein if I have been too plain, it must be remembered, *Faithful are the wounds of a friend, but the kisses of an enemy are deceitful.* This I think I have gained, that I ought to be the better believed in that which I shall say pertaining to commendation; because I have proceeded so freely in that which concerneth censure. And yet I have no purpose to enter into a laudative⁹⁸ of learning, or to make a hymn to the Muses (though I am of opinion that it is long since their rites were duly celebrated), but my intent is, without varnish⁹⁹ or amplification justly to weigh the dignity of knowledge in the balance with other things, and to take the true value thereof by testimonies and arguments divine and human.

VI. pp. 64—74.

Having now ‘cleared the way’ (p. 6, l. 1) by disposing of objections, Bacon proceeds to adduce evidence in favour of learning, both from the Scriptures and Ecclesiastical History, and from Secular History. His arguments from Scripture are very fanciful and far-fetched. We cannot talk of God’s *learning*, since he possesses all knowledge without having acquired it; but we see that, in the creation of the world, he manifested *wisdom* as well as power: and, while the works of power were completed in a moment, seven days were given to the disposition of created matter by divine wisdom.

Among the celestial beings, who stand next in rank to God, a higher place is given to the spirits of knowledge, than to the spirits of power: and the day of rest and contemplation is more blessed than the days of labour. The work which God assigned to man in Eden was to be pursued for the sake of pleasure and observation: and the first acts of man in Paradise were manifestations of knowledge. The story of the first fratricide displays, in an allegory, the preference of God for a contemplative rather than an active life. The Scriptures mention with honour the inventors who lived before the flood: and the greatest punishment which God could inflict on sinful man, after the flood, was to stop the progress of knowledge. It is specially mentioned in the Scriptures that Moses, whom God chose to communicate the divine law to the Jews, was a learned man: and both from the writings of Moses, and from other parts of

⁹⁶ *Peccant humours*, p. 54, n. 41.

⁹⁷ *Proficience, progress, traducement*, p. 27, n. 49. The quotation which follows is from *Proverbs*, xxvii. 6.

⁹⁸ A *laudative*, a panegyric. The *Muses* were the patron goddesses of art and science.

⁹⁹ *Varnish*, literally ‘an external polish’: here equivalent to ‘exaggeration.’ Cf. ‘I will a round unvarnish’d tale deliver.’—*Othello*, I., iii., 90.

the holy books, we learn lessons in morals and science. Solomon preferred knowledge to all things, and God approved of his choice. Christ showed his wisdom, before he showed his power: and the chosen apostles of Christianity were learned men.

Learning was held in esteem in the early church, and, in the sixteenth century, at the same time that God reformed his church, he also gave fresh life to learning. The Church of Rome owes the deepest debt of gratitude to the learned order of Jesuits.

Learning performs a double service to religion: the learned man alone can appreciate the power of God as manifested in nature: and learning enables us to understand the Scriptures, and convinces us of God's omnipotence.

VI. I. First therefore let us seek the dignity of knowledge in the arch-type or first platform,¹ which is in the attributes and acts of God, as far as they are revealed to man and may be observed with sobriety²; wherein we may not seek it by the name of learning; for all learning is knowledge acquired, and all knowledge in God is original: and therefore we must look for it by another name, that of wisdom or sapience, as the Scriptures call it.

2. It is so then, that in the work of the creation we see³ a double emanation of virtue from God; the one referring more properly to power, the other to wisdom; the one expressed⁴ in making the subsistence of the matter, and the other in disposing the beauty of the form. This being supposed, it is to be observed that for anything which appeareth in the history of the creation, the confused mass and matter

¹ *Platform*, pattern. Similarly, in *Essay 49*, Bacon talks of 'the platform of a garden.' The most perfect type of wisdom must be looked for in God.

² *With sobriety*, p. 13, n. 56.

³ Bacon wishes to show from the Jewish account of the creation that God assigns to wisdom a preëminence over power. He distinguishes the creation of matter, which was at first formless, (cp. *Genesis*. 1. 2. "and the earth was without form"), from the arrangement of the matter in the form of the world as we know it; and the preëminence of wisdom appears from this, that the mere creation of matter, which was an act of power, is clearly distinguished from the orderly distribution of the matter in the form of the world as we know it, which was an exercise of wisdom. The first 'carries the style of,' i.e. is described as, a manufacture, the second as a law or decree. If we look at the time which God allotted to the two, we shall find that the act of power may, for anything that appears to the contrary, have been performed in a moment, whereas six days were assigned to the work of wisdom.

The student must bear in mind that when it is said that matter was formless, it is not meant that it was absolutely without form, but, merely, that it had not assumed its present orderly arrangement.

⁴ *Expressed*, manifested. *Subsistence*, substance.

of heaven and earth was made in a moment ; and the order and disposition of that chaos or mass was the work of six days ; such a note⁵ of difference it pleased God to put upon the works of power, and the works of wisdom ; wherewith concurreth, that in the former it is not set down that God said, *Let there be heaven and earth*, as it is set down of the works following ; but actually, that God made heaven and earth : the one carrying the style of a manufacture, and the other of a law, decree, or counsel.

3. To proceed to that which is next in order from God to spirits ; we find, as far as credit is to be given to the celestial hierarchy⁶ of that supposed Dionysius the senator of Athens, the first place or degree is given to the angels of love, which are termed seraphim ; the second to the angels of light, which are termed cherubim ; and the third, and so following places, to thrones, principalities, and the rest, which are all angels of power and ministry ; so as the angels of knowledge and illumination are placed before the angels of office and domination.

4. To descend from spirits and intellectual forms⁷ to sensible and material forms, we read the first form that was created was light, which hath a relation and correspondence in nature and corporal things to knowledge in spirits and incorporal things.

5. So in the distribution of days we see⁸ the day wherein God did rest and contemplate his own works, was blessed above all the days wherein he did effect and accomplish them.

6. After the creation was finished, it is set down⁹ unto us that man

⁵ Note, mark. By 'God made heaven and earth' is meant, 'God created matter': by 'the works following' Bacon means the orderly distribution of the matter. He is alluding to the form of words used in the Bible—'Let there be light,' 'Let there be a firmament,' &c.

⁶ 'The celestial hierarchy.' This work, in the genuineness of which no one probably now believes, exercised great influence on the medieval development of the doctrine of the nature and faculties of angels. E. cp. p. 45, n. 84.

⁷ Forms, obs. that the word 'form' is applied both to angels and material objects. Bacon probably had in mind scholastic uses of the word. Thomas Aquinas uses the word, as Bacon does here, to express 'material objects'—'matter to which shape has been given,'—but he also says that there are separate and immaterial forms, as an instance of which he mentions the angels. *Incorporal*, incorporeal.

⁸ "And on the seventh day God ended his work which he had made, and he rested on the seventh day...and God blessed the seventh day and sanctified it."

⁹ It is set down, it is written. Cp. l. 5.

was placed in the garden to work therein ; which work, so appointed to him, could be no other than work of contemplation ; that is, when the end of work is but for exercise and experiment, not for necessity ; for there being then no reluctance¹⁰ of the creature, nor sweat of the brow, man's employment must of consequence have been matter of delight in the experiment, and not matter of labour for the use. Again, the first acts which man performed in Paradise consisted of the two summary¹¹ parts of knowledge ; the view of creatures, and the imposition of names. As for the knowledge which induced the fall, it was, as was touched¹² before, not the natural knowledge of creatures but the moral knowledge of good and evil, wherein the supposition was, that God's commandments or prohibitions were not the originals¹³ of good and evil, but that they had other beginnings, which man aspired to know ; to the end to make a total defection from God and to depend wholly upon himself.

7. To pass on : in the first event or occurrence after the fall of man, we see (as the scriptures have infinite mysteries, not violating at all the truth of the story or letter) an image of the two estates, the contemplative state and the active state, figured in the two persons of Abel and Cain,¹⁴ and in the two simplest and most primitive trades of life ; that of the shepherd (who, by reason of his leisure, rest in a place, and living in view of heaven, is a lively image of a contemplative life), and that of the husbandman : where we see again the favour and

¹⁰ *Reluctation*, effort. The necessity of labour was imposed on man as a punishment after the fall. *Of consequence*, consequently.

¹¹ *Summary*, most important, observation and language are necessary to knowledge. With this passage cp. 1. 3.

¹² *Touched*, just mentioned.

¹³ *Were not the originals*, i.e. things were not constituted right or wrong simply by God ordering or forbidding them. The meaning is explained on p. 7. l. 19. sq. This remark would seem to imply a discouragement of the study of Ethics, but we must not press his words too closely. In the first place, he is not expressing an opinion of his own, but interpreting a text of Scripture. Moreover, Bacon held that although the laws of morals are discoverable by reason, still they are to be inferred from the wish of God as manifested in nature ; see Bk. 2, xx. 7, and that all our reasonings about right and wrong must be bounded by the indications of conscience. See Bk. 2, xxii. 1. and xxv. 3.

¹⁴ The two brothers Abel and Cain, sons of Adam, the one a shepherd and the other a tiller of the ground, both made offerings to God. That of Abel was accepted, and that of Cain rejected. In a fit of jealousy, Cain murdered his brother.

election of God went to the shepherd, and not to the tiller of the ground.

8. So in the age before the flood, the holy records within those few memorials which are there entered and registered, have vouchsafed to mention and honour the name of the inventors and authors of music and works in metal. In the age after the flood, the first great judgement of God upon the ambition of man was the confusion of tongues¹⁵; whereby the open trade¹⁶ and intercourse of learning and knowledge was chiefly imbarred.¹⁷

9. To descend to Moyses the lawgiver, and God's first pen¹⁸: he is adorned by the scriptures with this addition and commendation, *That he was seen in¹⁹ all the learning of the Egyptians*; which nation, we know, was one of the most ancient schools of the world: for so Plato brings in the Egyptian priest²⁰ saying unto Solon, *You Grecians are ever children; you have no knowledge of antiquity, nor antiquity of knowledge.* Take a view of the ceremonial law of Moyses; you shall find, besides the prefiguration of Christ,²¹ the badge or difference of the people of God,²² the exercise and impression²³ of obedience,

¹⁵ *The confusion of tongues*, "And the Lord said, Behold, the people is one, and they have all one language . . . and now nothing will be restrained from them which they have imagined to do. Go to, let us go down, and confound their language, that they may not understand one another's speech."—*Gen. xi. 6.* The punishment was inflicted on men because they wished to build a tower which should reach to heaven.

¹⁶ *Trade*, on the analogy of the Latin 'commercium,' which had the general meaning of 'intercourse,' before it acquired the special meaning of 'trade.'

¹⁷ *Imbarred*, stopped.

¹⁸ *God's first pen*, the writer of the first of the sacred books.

¹⁹ *Seen in*, p. 33, n. 3.

²⁰ *Plato brings in, &c.*, "Thereupon one of the priests, who was of a very great age, said: O Solon, Solon, you Hellenes are but children, and there is never an old man who is a Hellene. Solon in return asked him what he meant. I mean to say, he replied, that in mind you are all young: *there is no old opinion handed down among you by ancient tradition: nor any science which is hoary with age.*"—Plato's *Timaeus*.

²¹ *The prefiguration of Christ*. Christian theologians find in the Jewish ritual a series of types or foreshadowings of the teaching of Christ, or of events in his life.

²² *The people of God*, viz., the Jews, who were distinguished from other nations as 'God's chosen people.'

²³ *The impression*, the enforcement of. The word means literally 'a stamp' or 'character.' See p. 5, n. 19, and cp. Bk. 2, xxii. 15, 'by *imprinting* on their souls charity,' and cp. 'prints,' Bk. 1, viii. 2.

and other divine uses and fruits thereof, that some of the most learned Rabbins have travailed profitably and profoundly to observe, some of them a natural, some of them a moral, sense or reduction of²⁴ many of the ceremonies and ordinances. As in the law of the leprosy, where it is said, *If the whiteness have overspread the flesh, the patient may pass abroad for clean; but if there be any whole flesh remaining, he is to be shut up for unclean;* one of them noteth a principle of nature, that putrefaction is more contagious before maturity than after: and another noteth a position of moral philosophy, that men abandoned to vice do not so much corrupt manners, as those that are half good and half evil. So in this and very many other places in that law, there is to be found, besides the theological sense, much aspersion²⁵ of philosophy.

10. So likewise in that excellent book of Job, if it be revolved with diligence, it will be found pregnant and swelling with natural philosophy; as for example, cosmography, and the roundness of the world, *He stretcheth out the North over the empty place, and hangeth the earth upon nothing;* wherein the pensilenesse²⁶ of the earth, the pole of the north, and the finiteness or convexity of heaven are manifestly touched.²⁷ So again, matter of astronomy; *By his spirit he hath garnished the heavens: his hand hath formed the crooked serpent.* And in another place, *Canst thou bring together the glittering stars of the Pleiades, or scatter the array of Arcturus?* Where the fixing of the stars, ever standing at equal distance, is with great elegancy noted. And in another place, *who maketh Arcturus, Orion and Hyades, and the secrets of the South;* where again he takes knowledge of the depression of the southern pole, calling it the secrets of the south, because the southern stars were in that climate unseen. Matter of generation; *Hast thou not poured me out as milk, and curdled me like cheese?* &c. Matter of minerals; *Surely there is a vein for the silver, and a place for gold where they fine it. Iron is taken out of the earth, and brass is molten out of the stone:* and so forwards in that chapter.

11. So likewise in the person of Salomon the king, we see the gift

²⁴ A moral reduction of the ceremonies, i.e. a moral inference from the ceremonies, cp. Bk. 2, xiv. 3. By 'a natural reduction' is meant an inference in physics.

²⁵ Aspersion, a sprinkling, i.e. an intermixture.

²⁶ Pensilenesse, the fact that the earth is suspended.

²⁷ Touched, see above, n. 12.

or endowment of wisdom and learning, both in²⁸ Salomon's petition and in God's assent thereunto, preferred before all other terrene and temporal felicity. By virtue of which grant or donative of God Salomon²⁹ became enabled not only to write those excellent parables or aphorisms concerning divine and moral philosophy; but also to compile a natural history of all verdure,³⁰ from the cedar upon the mountain to the moss upon the wall (which is but a rudiment³¹ between putrefaction and an herb), and also of all things that breathe or move. Nay, the same Salomon the king, although he excelled in the glory of treasure and magnificent buildings, of shipping and navigation, of service and attendance,³² of fame and renown, and the like, yet he maketh no claim to any of those glories, but only to the glory of inquisition of truth; for so he saith expressly, *The glory of God is to conceal a thing, but the glory of the king is to find it out;* as if, according to the innocent play of children, the Divine Majesty took delight to hide his works, to the end to have them found out; and as if kings could not obtain a greater honour than to be God's playfellows in that game; considering the great commandment of wits and means,³³ whereby nothing needeth to be hidden from them.

²⁸ Both in Salomon's petition, &c. "The Lord appeared to Solomon in a dream by night, and God said, Ask what I shall give thee. And Solomon said . . . Give thy servant an understanding heart to judge thy people, that I may discern between good and bad . . . And the speech pleased the Lord. . . . And God said unto him . . . Lo! I have given thee a wise and understanding heart."—*History of the Jewish Kings*, i. iii. 5.

²⁹ "And Solomon spake three thousand proverbs . . . And he spake of trees from the cedar tree that is in Lebanon even unto the hyssop that springeth out of the wall: he spoke also of beasts and of fowl, and of creeping things, and of fishes."—*Ibid.* i. iv. 33.

³⁰ *Verdure*, trees and vegetables.

³¹ A rudiment, something undeveloped. Elsewhere Bacon calls rudiments 'participles,' i.e. partakers of two kinds, just as the participle in grammar partakes of the nature of both verb and noun. He defines them as "things, the appearance of which is such, that they seem to be made up of two species or to be 'rudiments' between one species and another." According to Fowler, moss is incorrectly described as a rudiment. He mentions as instances of 'rudiments,' in the animal world, the order Dipnoi, which have affinities to fishes in one set of organs, and to amphibia in another.

³² Of service and attendance, i.e. of servants to wait upon him.

³³ The great commandment of wits and means, i.e. considering that a king can command the assistance of so many men's brains, and has such large resources at his disposal. The student should observe the truth, which Bacon

12. Neither did the dispensation of God vary in the times after our Saviour himself came into the world, for our Saviour³⁴ himself did first show his power to subdue ignorance, by his conference with the priests and doctors of the law, before he showed his power to subdue nature by his miracles. And the coming of the Holy Spirit³⁵ was chiefly figured and expressed in the similitude and gift of tongues, which are but *the carriers of knowledge*.

13. So in the election of those instruments, which it pleased God to use for the plantation of the faith,³⁶ notwithstanding that at the first he did employ persons altogether unlearned,³⁷ otherwise than by inspiration, more evidently to decare his immediate working, and to abase all human wisdom or knowledge; yet nevertheless that counsel³⁸ of his was no sooner performed, but in the next vicissitude and succession³⁹ he did send his divine truth into the world, waited on with other learnings as with servants or handmaids: for so we see Saint Paul, who was only learned⁴⁰ amongst the Apostles, had his pen most used in⁴¹ the scriptures of the New Testament.

so often insists on, that Nature does not reveal her secrets spontaneously. He who would learn the truth must patiently 'interrogate nature,' and cross-examine her, as a lawyer does a witness.

³⁴ *For our Saviour, &c.* When Christ was only twelve years old, his parents "found him in the temple, sitting in the midst of the doctors, both hearing them and asking them questions. And all that heard him were astonished at his understanding and answers."—*Luke ii. 46. The Law*, p. 2, l. 1.

³⁵ *The Holy Spirit.* The third person of the Christian Trinity. The disciples of Christ are said to have been visited by the spirit, and his presence was revealed to them by their suddenly being endowed with the power of speaking any language that they chose. .

³⁶ *For the plantation of the faith, i.e. to disseminate the doctrines of Christianity.*

³⁷ *Altogether unlearned.* The immediate followers of Christ and first preachers of Christianity possessed no knowledge except such as was miraculously given them by God, 'by inspiration.' They belonged, mostly, to the lowest classes: several of them being common fishermen. Their natural ignorance, says Bacon, displayed all the more clearly that they were under the direct influence, 'immediate working,' of God.

³⁸ *Counsel*, intention.

³⁹ *In the next vicissitude and succession*, in the times immediately following.

⁴⁰ *Who was only learned*, i.e. who alone, among the Apostles, was learned.

⁴¹ *Had his pen most used in*, wrote the greater part of. *The New Testament*, the Christian, as opposed to the Jewish, Scriptures.

14. So again we find that many of the ancient bishops and fathers⁴² of the Church were excellently read and studied in all the learning of the heathen; insomuch that the edict of the Emperor Julianus (whereby it was interdicted⁴³ unto Christians to be admitted into schools, lectures, or exercises of learning) was esteemed and accounted a more pernicious engine and machination against the Christian Faith, than were all the sanguinary prosecutions of his predecessors; neither could the emulation and jealousy⁴⁴ of Gregory the first of that name, bishop of Rome, ever obtain the opinion⁴⁵ of piety or devotion; but contrariwise received the censure of humour,⁴⁶ malignity and pusillanimity, even amongst holy men in that⁴⁷ he designed to obliterate and extinguish the memory of heathen antiquity and authors. But contrariwise it was the Christian church, which, amidst the inundations of the Scythians⁴⁸ on the one side from the north-west, and the Saracens⁴⁹ from the east, did preserve in the sacred

⁴² Fathers, the word is used of those priests of the early church, whose writings have been accepted as authoritative on points of doctrine.

⁴³ Interdicted, forbidden. The Emperor Julian, who wished to destroy Christianity and to restore the early religion of Rome, issued an edict, A.D. 363, forbidding Christian professors to teach. This indirectly forbade Christians to learn, since they could not conscientiously attend the schools of Pagan teachers.—*Gibbon*, ch. 23.

⁴⁴ Emulation and jealousy, i.e. his zeal for Christianity, and his hatred of anything that might prove a dangerous rival to it. See below, vii. 5.

⁴⁵ The opinion, the reputation.

⁴⁶ Humour, caprice.

⁴⁷ In that, because. Gregory the First, commonly called ‘the Great,’ was Pope from A. D. 590—604. “It is commonly believed that Pope Gregory the First attacked the temples and mutilated the statues of the city: that by the command of the barbarian the Palatine Library was reduced to ashes, and that the history of Livy was the peculiar mark of his absurd and mischievous fanaticism. The writings of Gregory himself reveal his implacable aversion to the monuments of classic genius, and he points his severest censure against the profane learning of a bishop who studied the Latin poets, and pronounced with the same voice the praises of Jupiter and those of Christ. But the evidence of his destructive rage is doubtful and recent”—*Gibbon*, ch. 45.

⁴⁸ The Scythians in Europe inhabited the tract of country stretching from the Danube to the Crimea and Mount Caucasus. They appeared on the boundaries of the Roman Empire, A.D. 375. But the name is vaguely applied to a great number of barbarian tribes.

⁴⁹ The Saracens, this name is applied to the tribes who dwelt between Mecca and the Euphrates. In the seventh century they conquered Persia, Syria, and Africa: and in the eighth century they conquered Spain.

lap and bosom thereof⁵⁰ the precious relics even of heathen learning, which otherwise had been extinguished as if no such thing had ever been.

15. And we see before our eyes, that in the age of ourselves and our fathers, when it pleased God to call the Church of Rome to account for their degenerate manners and ceremonies, and sundry doctrines obnoxious and framed to uphold the same abuses; at one and the same time it was ordained by the Divine Providence, that there should attend withal a renovation and new spring⁵¹ of all other knowledges. And, on the other side we see the Jesuits, who partly in themselves⁵² and partly by the emulation and provocation of their example, have much quickened⁵³ and strengthened the state of learning, we see (I say) what notable service and reparation⁵⁴ they have done to the Roman see.⁵⁵

16. Wherefore to conclude this part, let it be observed, that there be two principal duties and services, besides ornament and illustration, which philosophy and human learning do perform to faith and religion. The one, because they are an effectual inducement to the exaltation of the glory of God. For as the Psalms⁵⁶ and other scriptures do often invite us to consider and magnify the great and wonderful works of God, so if we should rest only in the contemplation of the exterior of them as they first offer themselves to our senses, we should do a like injury unto the majesty of God, as if we should judge or construe of⁵⁷ the store of some excellent jeweller, by that only which is set out towards the street in his shop. The other,

⁵⁰ *Thereof*, viz., of the church.

⁵¹ *A renovation and new spring*, &c. Bacon alludes to the Renaissance, see p. 38, n. 41. As a matter of fact the Reformation was due to the spirit of inquiry generated, and the new ideas which were everywhere disseminated by the New Learning.

⁵² *Partly in themselves, &c.* i.e. partly by what they did themselves, and partly by what their example induced others to do. Cp. p. 28, II. 13—21.

⁵³ *Quickened*, given life to.

⁵⁴ *Reparation*, renewed strength.

⁵⁵ *The Roman see*, i.e. the Papacy. “A see” is the district over which the authority of a Bishop extends. The see of the Pope, of course, includes all parts of the world in which there are any Catholics.

⁵⁶ *The Psalms*, a book of hymns forming part of the Jewish Scriptures.

⁵⁷ *Construe of*, form an opinion of. Our admiration of God's power will be greater in proportion as we go beneath the surface of things, and penetrate into the hidden workings of nature.

because they minister a singular help and preservative against unbelief⁵⁸ and error. For our Saviour saith, *You err, not knowing the scriptures, nor the power of God*; laying before us two books or volumes to study, if we will be secured from error; first the scriptures revealing the will of God, and then the creatures⁵⁹ expressing⁶⁰ his power; whereof the latter is a key unto the former: not only opening our understanding to conceive the true sense of the scriptures, by the general notions of reason and rules of speech; but chiefly opening our belief, in drawing us into a due meditation of the omnipotency of God, which is chiefly signed⁶¹ and engraven upon his works. Thus much therefore for divine testimony and evidence concerning the true dignity and value of learning.

VII. Pp. 74—94. Passing from the Bible and Ecclesiastical history, Bacon now proceeds to give certain proofs of the value of learning, drawn from history. Innumerable proofs might be given: it is impossible here to do more than select a few of them.

Of all the honours which men have bestowed upon their more famous fellow-men, the highest honour of all, that of deification, has been conferred on those who by their labours and inventions have added to the stock of human comforts.

Learning, like an Orpheus' lute, tames the evil passions, and renders social life possible.

No societies have been so prosperous as those which have been directed by governors learned in the principles of morality and true statesmanship. This fact is illustrated by the history of the Roman people under the learned successors of Domitian—Nerva, who showed that the maintenance of the authority of the law was not incompatible with the liberty of the subject—Trajan, who combined patronage of learning with virtue and good government—the inquiring Adrian, who gave peace to the Church, and traversed the Empire, redressing wrongs and improving the condition of his people—the pure and studious Antoninus, who was almost a Christian—the philosophic Marcus Aurelius, that perfect ruler in whom envy itself could detect no fault. In modern times, to say nothing of James himself, Queen Elizabeth was, at the same time, the most learned of women and the most successful of sovereigns.

Nor is learning less conducive to success in war, than to success in the arts of peace. Alexander was equally great as a soldier and as a philosopher. He understood the true value of worldly goods, the weaknesses of man, the worthlessness of flattery, and the uses and abuses of argument. He was

⁵⁸ *Preservative against unbelief*, cp. p. II, n. 53.

⁵⁹ *The creatures*, p. 44, n. 82.

⁶⁰ *Expressing*, p. 65, n. 4.

⁶¹ *Signed*, stamped. The Latin word 'signum' corresponds to the Greek word 'character': see p. 5, n. 19.

skilled in the use of rhetoric. He was a keen judge of character, and could truly estimate the resources, which ambition has to rely upon. Julius Cæsar was a great general, but he was also a great scholar. He was a good writer, and a master of style. He reformed the Calendar. He was not afraid to enter the lists against the most learned disputants. Though a sayer of wise things himself, he was not above studying the wisdom of others. By a single word he suppressed a mutiny: he knew how to relieve himself from an embarrassing situation by a happy speech, and in a pithy saying he could give expression to the most opposite feelings. He was conscious of his superiority, and knew how to turn this consciousness to his own advantage. Xenophon the philosopher also performed one of the greatest military feats that history records.

This is an amplification of what has been said already, pp. 15-21, and for the meaning of the saying that learning is of practical use in government and war, see notes on that passage. The connotation of learning is somewhat enlarged here. In the former passage, Bacon talked principally of a knowledge of history—here he includes logic, rhetoric and philosophy. But here also he does not confine himself to the successes of Cæsar and Alexander *in war*: he considers them as great leaders of men. The above mentioned studies do enable a man to fill a great position with success. In the first place the mere possession of learning ensures admiration and attention. Again, study and reflection, when perfected by experience, bring influence, because they give knowledge of character. They produce that indefinable ‘personal influence,’ to which men like Cæsar and Alexander owe so much of their success, and to the presence of which, in these two men, the anecdotes related by Bacon bear witness.

VII. I. As for human proofs it is so large a field, as in a discourse of this nature and brevity it is fit rather to use choice⁶² of those things which we shall produce, than to embrace the variety of them. First therefore, in the degrees of human honour⁶³ amongst the heathen, it was the highest to obtain to a veneration and adoration as a God. This unto the Christians is as the forbidden fruit.⁶⁴ But we speak now separately of human testimony: according to which that which the Grecians call *apotheosis* and the Latins *relatio inter divos*

⁶² To use choice, &c., i.e. it is more convenient to select a few, than to include them all.

⁶³ Human honour, honour which man could confer upon man.

⁶⁴ As the forbidden fruit, referring to the story of Adam's temptation. Cp.—

Of man's first disobedience and the fruit

Of that forbidden tree, whose mortal taste

Brought death into the world, and all our woes, &c.

—Paradise Lost, I. 1.

Christians are not allowed to worship any man as God.

(*deification*), was the supreme honour which man could attribute unto man: specially when it was given, not by a formal decree or act of state, as it was used among⁶⁵ the Roman Emperors, but by an inward assent⁶⁶ and belief. Which honour, being so high, had also a degree or middle term⁶⁷: for there were reckoned above human honours, honours heroical and divine: in the attribution and distribution of which honours we see antiquity made this difference: that whereas founders and uniter of states and cities, lawgivers, extirpers⁶⁸ of tyrants, fathers of the people,⁶⁹ and other eminent persons in civil merit, were honoured but with the titles of worthies⁷⁰ or demi-gods; such as were Hercules,⁷¹ Theseus, Minos, Romulus, and the like; on the other side such as were inventors and authors of new arts, endowments, and commodities towards man's life, were ever consecrated amongst the gods themselves; as was Ceres,⁷² Bacchus, Mercurius, Apollo, and others; and justly; for the merit of the former is confined within the circle of an age or a nation; and is like fruitful showers, which though they be profitable and good, yet serve but for that season, and for a latitude of ground where⁷³ they fall; but the other is indeed like the benefits of heaven, which are permanent

⁶⁵ As it was used among, as it was the custom to give it to the Roman Emperors. Divine honours were regularly decreed to the Emperors, generally during their life time, by the Senate.

⁶⁶ By an inward assent, i.e. voluntarily, or by tacit consent. The honour was all the greater, when it was granted by the people spontaneously.

⁶⁷ A degree or middle term, i.e. there were three degrees of honour—deification was the highest, and honour granted during a man's life time or human honour the lowest; between these two extremes came the honour of being made a demigod—which Bacon calls '*honour heroical*'

⁶⁸ Extirpers, extirpators.

⁶⁹ Fathers of the people, a title given at Rome to those who delivered their country in times of danger. Cicero, after defeating the conspiracy of Catiline, was styled 'the father of his country.' This is an instance of '*human honour*'

Eminent persons in civil merit, men who had rendered conspicuous services to their country.

⁷⁰ Worthies. i.e. heroes, or demi-gods.

⁷¹ Hercules, p. 42, n. 71. He freed Grecce from a number of monsters who infested the country, and destroyed both life and property. Theseus, Minos, and Romulus were the legendary founders of the Athenian, Cretan, and Roman states.

⁷² Ceres, Bacchus, Mercury, and Apollo were the givers of corn, wine, speech, and music.

⁷³ A latitude of ground where, the extent of ground on which.

and universal. The former again is mixed with strife and perturbation ; but the latter hath the true character of Divine Presence,⁷⁴ coming in *with gentle breath*, without noise or agitation.

2. Neither is certainly that other merit of learning, in repressing the inconveniences which grow from man to man⁷⁵ much inferior to the former, of relieving the necessities which arise from nature ; which merit was lively set forth by the ancients in that feigned relation of Orpheus⁷⁶ theatre, where all beasts and birds assembled ; and forgetting their several appetites, some of prey, some of game,⁷⁷ some of quarrel, stood all sociably together listening unto the airs and accords⁷⁸ of the harp ; the sound whereof no sooner ceased, or was drowned by some louder noise, but every beast returned to his own nature : wherein is aptly described the nature and condition of men who are full of savage and unreclaimed desires, of profit, of lust, of revenge ; which as long as they give ear to precepts, to laws, to religion, sweetly touched with⁷⁹ eloquence and persuasion of books, of sermons, of harangues, so long is society and peace maintained ; but if these instruments⁸⁰ be silent, or that⁸¹ sedition and tumult make them not audible, all things dissolve into anarchy and confusion.

3. But this appeareth more manifestly, when kings themselves, or persons of authority under them, or other governors in commonwealths and popular estates,⁸² are endued with learning. For although he might be thought partial to his own profession, that said *Then should*

⁷⁴ *Divine presence*, referring to a story of God visiting the Jewish prophet Elijah, and making his presence known 'by a slight breath of air.' This idea of the peaceable entry of truth is repeated, Bk. 2, viii. 4.

⁷⁵ *Which grow from man to man*, which men inflict on one another, before they are softened by learning, and civilized.

⁷⁶ *Orpheus*, the wonderful musician who, by the magic of his lyre, is said to have made even the trees of the forest follow him.

⁷⁷ *Game*, playfulness.

⁷⁸ *Airs and accords*, tunes and harmonies. We still use the word 'air' in this sense.

⁷⁹ *Sweetly touched with*, i.e. made pleasant to the ear by. The metaphor is from 'touching' the strings of a harp. Eloquence will charm man, as music charmed the brutes.

⁸⁰ *Instruments*, viz., eloquence and persuasion of books, &c., but the metaphor from music is still kept up ; for we talk of a musical '*instrument*', to express anything from which musical sounds are produced.

⁸¹ *That*, redundant.

⁸² *Popular estates*, republics. For *estates*, cp. p. 19, n. 89. With this paragraph cp. p. 21, § 5.

*people and estates be happy, when either kings were philosophers, or philosophers kings,*⁸³ yet so much is verified by experience, that under learned princes and governors there have been ever the best times: for howsoever kings may have their imperfections in their passions and customs; yet if they be illuminate⁸⁴ by learning, they have those notions of religion, policy, and morality, which do preserve them and refrain them⁸⁵ from all ruinous and peremptory⁸⁶ errors and excesses; whispering evermore in their ears, when counsellors and servants stand mute and silent. And senators or counsellors likewise, which be learned, do proceed upon more safe and substantial principles, than counsellors which are only men of experience⁸⁷: the one sort keeping dangers afar off, whereas the other discover them not till they come near hand, and then trust to the agility⁸⁸ of their wit to ward or avoid them.

4. Which felicity of times under learned princes (to keep still the law of brevity, by using the most eminent and selected examples) doth best appear in the age which passed⁸⁹ from the death of Domitianus the emperor until the reign of Commodus; comprehending a succession of six princes, all learned, or singular favourers and advancers of learning, which age for temporal respects⁹⁰ was the most happy and flourishing that ever the Roman empire (which then was a model of the world⁹¹) enjoyed; a matter revealed and prefigured unto Domitian in a dream the night before he was slain; for he thought there was grown behind upon his shoulders a neck and a head of gold: which came accordingly to pass⁹² in those golden times which succeeded:

⁸³ This saying is taken from Plato's Republic. See p. 29, n. 69.

⁸⁴ Illuminate, p. 58, n. 62.

⁸⁵ Refrain them, we now use the word 'refrain' intransitively.

⁸⁶ Peremptory, irremediable: or the word may be used in its literal sense of pernicious. With this passage, cp. *Essay xx.* "It was truly said, *The dead are the best counsellors*: books will speak plain, when counsellors blanch (are afraid). Therefore it is good to be conversant in them; specially the books of such, as themselves have been actors upon the stage."

⁸⁷ Men of experience, mere empirics. Cp. 'which are only men of practice,' p. 17, l. 30.

⁸⁸ Agility, we still speak of a 'quick,' i.e. a ready, wit.

⁸⁹ The age which passed, &c. from A.D. 96 to 180.

⁹⁰ For temporal respects, for temporal considerations. The Latin translation has, 'If we look only to temporal prosperity.' For 'temporal,' see p. 4, n. 14.

⁹¹ Which was a model of the world, which may be taken to represent the whole world, since it nearly included it.

⁹² Which came to pass, i.e. which dream was fulfilled.

of which princes we will make some commemoration; wherein although the matter will be vulgar,⁹³ and may be thought fitter for a declamation than agreeable to a treatise infolded⁹⁴ as this is, yet because it is pertinent to the point in hand, *And Apollo⁹⁵ is not always stretching his bow*, and to name them only were too naked⁹⁶ and cursory, I will not omit it altogether. The first was Nerva; the excellent temper of whose government is by a glance⁹⁷ in Cornelius Tacitus touched to the life: *When the divine Nerva had reconciled things which did not go together before, namely, authority and liberty.* And in token of his learning, the last act of his short reign left to memory was a missive to his adopted son Trajan, proceeding upon⁹⁸ some inward discontent at the ingratitude of the times, comprehended in a verse of Homer's:

“ *O Phœbus, by thy shafts avenge these tears.*”⁹⁹

5. Trajan, who succeeded, was for his person not learned¹: but if we will hearken to the speech of our Saviour, that saith, *He that receiveth a prophet in the name of a prophet² shall have a prophet's reward*, he deserveth to be placed amongst the most learned princes: for there was not a greater admirer of learning or benefactor of learning; a founder of famous libraries, a perpetual advancer of learned men to office, and a familiar converser with learned professors and preceptors, who were noted to have then most credit in court. On the other side, how much Trajan's virtue and government was admired and renowned, surely no testimony of grave and faithful

⁹³ *Vulgar*, known to all.

⁹⁴ *Infolded*, condensed: literally, ‘wrapped up,’ so as to occupy little space.

⁹⁵ *And Apollo, &c.* This line of Horace has passed into a proverb meaning that ‘everyone relaxes occasionally.’

⁹⁶ *Naked*, cp. our use of the word ‘bare,’ in the phrases ‘a bare assertion,’ and ‘barely to mention,’ i.e. without any comment.

⁹⁷ *A glance*, a single remark. A glance is a rapid look.

⁹⁸ *Proceeding upon*, caused by.

⁹⁹ Nerva asks his son, under the name of Phœbus, to avenge his father's wrongs. The line is taken from Homer, who describes the priest Chryses as calling upon his patron God Apollo to avenge the wrong which he had suffered in the abduction of his daughter by Agamemnon.

¹ *Was for his person not learned*, was not himself a learned man.

² *In the name of a prophet*, i.e. because he is a prophet: out of respect for his sacred character. Trajan did honour to learned men out of respect for their learning, and therefore should be honoured equally with the learned, on the principle that he that receiveth a prophet, &c.

history doth more lively set forth than that legend tale of Gregorius Magnus,⁸ bishop of Rome, who was noted for the extreme envy he bare towards all heathen excellency; and yet he is reported, out of the love⁹ and estimation of Trajan's moral virtues, to have made unto God passionate and fervent prayers for the delivery of his soul out of hell¹⁰: and to have obtained it, with a caveat¹¹ that he should make no more such petitions. In this prince's time also the persecutions¹² against the Christians received intermission, upon the certificate of Plimius Secundus, a man of excellent learning and by Trajan advanced.

6. Adrian, his successor, was the most curious¹³ man that lived, and the most universal inquirer; insomuch as it was noted for an error¹⁴ in his mind, that he desired to comprehend all things, and not to reserve himself for the worthiest things: falling into the like humour that was long before noted in Philip¹⁵ of Macedon; who, when he would needs over-rule and put down¹⁶ an excellent musician in an argument touching music, was well answered by him again, *God forbid, sir (saith he), that your fortune should be so bad, as to*

⁸ *Gregory the great*, p. 72, n. 44.

⁹ *The love*, we should say 'his love.' Cp. p. 37, l. 8.

¹⁰ *Out of hell*. The Catholic Church devoted all non-Christians to eternal punishment; cp. Bk. 2, iii. I, n. 53.

¹¹ *A caveat*, p. 29, n. 65.

¹² *The persecutions*, see Gibbon, ch. xvi. Pliny was governor of Bithynia, and asked Trajan's advice as to how the Christians were to be dealt with.

¹³ *Curious*, inquiring. The word now means either 'inquisitive' or 'strange.' Gibbon, ch. I, says of Hadrian, "that his life was almost a perpetual journey: and as he possessed the various talents of the soldier, the statesman, and the scholar, he gratified his curiosity in the discharge of his duty. . . . nor was there a province of the empire which, in the course of his reign, was not honoured with the presence of the monarch."

¹⁴ *It was noted for an error, &c.* In the eleventh Essay, Bacon gives the following piece of advice to men in great place—"Preserve the rights of inferior places: and think it more honour to direct in chief, than to be busy in all."

¹⁵ *Philip of Macedon*, the father of Alexander the Great.

¹⁶ *Over-rule and put down*, to contradict and silence: to prove him to be in the wrong. Cp. *The Interpretation of Nature*. "Sir, (saith a man of art to Philip king of Macedon when he controlled him in his faculty) *God forbid your fortune should be such as to know these things better than I.* In taxing his ignorance in his art, he represented to him the perpetual greatness of his fortune, leaving him no vacant time for so mean a skill."

know these things better than I. It pleased God likewise to use the curiosity of this emperor as an inducement to the peace of his Church in those days. For having Christ in veneration, not as a God or Saviour but as a wonder or novelty, and having his picture in his gallery, matched with Apollonius¹² (with whom in his vain imagination he thought he had some conformity), yet it served¹³ the turn to allay the bitter hatred of those times against the Christian name, so as the Church had peace during his time. And for his government civil,¹⁴ although he did not attain to that of Trajan's in glory of arms or perfection of justice, yet in deserving of the weal of the subject he did exceed him. For Trajan erected many famous monuments and buildings; insomuch as Constantine the Great in emulation was wont to call him, *Parietaria*, wall-flower, because his name was upon so many walls: but his buildings and works were more of glory and triumph than use and necessity. But Adrian spent his whole reign, which was peaceable, in a perambulation or survey of the Roman empire; giving order and making assignation where he went, for re-edifying¹⁵ of cities, towns, and forts decayed; and for cutting of rivers and streams, and for making bridges and passages,¹⁶ and for policing of cities and commonalties with new ordinances and constitutions, and granting new franchises and incorporations¹⁷; so that his whole time was a very restoration of all the lapses and decays of former times.

7. Antoninus Pius, who succeeded him, was a prince excellently learned, and had the patient and subtle wit of a schoolman;¹⁸ inso-

¹² *Matched with Apollonius*, placed side by side with that of Apollonius. Apollonius of Tyana in Cappadocia, who lived in the first century A.D., was a diviner and a reputed worker of miracles. It is said that it was not Hadrian, but Alexander Severus who matched the picture of Christ with that of Apollonius, and who actually built a temple in honour of Christ. Hadrian however had a feeling of respect both for Christ and for Apollonius. E.

¹³ *It served*, the construction is irregular. 'It' means the admiration of the Emperor for Christ.

¹⁴ *Civil*, opposed to ecclesiastical.

¹⁵ *Re-edifying*, used in its literal sense of 'rebuilding.' The verb 'to edify' now means 'to instruct,' or 'to improve a man's character.'

¹⁶ *Passages*, roads. *For policing of*, for the administration of.

¹⁷ *Granting new franchises and incorporations*, investing new cities with municipal independence.

¹⁸ *Subtle wit of a schoolman*, see p. 45, § 6.

much as in common speech (which leaves no virtue untaxed¹⁹) he was called *Cymini Sector*,²⁰ a carver or a divider of cummin seed, which is one of the least seeds; such a patience he had and settled spirit,²¹ to enter into the least and most exact differences of causes; a fruit no doubt of the exceeding tranquillity and serenity of his mind; which²² being no ways charged or incumbered, either with fears, remorses, or scruples, but having been noted for a man of the purest goodness, without all fiction or affectation, that hath reigned or lived, made his mind continually present and entire.²³ He likewise approached a degree nearer unto Christianity, and became, as Agrippa said²⁴ unto S. Paul, *half a Christian*; holding their religion and law in good opinion, and not only ceasing persecution, but giving way to the advancement of Christians.

8. There succeeded him the first *Divine brothers*,²⁵ the two adoptive brethren, Lucius Commodus Verus, son to Ælius Verus, who delighted much in the softer kind of learning, and was wont to call the poet

¹⁹ Untaxed, uncensured.

²⁰ *Cymini sector*, cp. Essay 50. "If his wit be not apt to distinguish, or find differences, let him study the School-men: for they are cymini sectores." We now talk of 'hair-splitting.'

²¹ Settled spirit, determination.

²² Which—entire, Obs. the irregular construction. The subject properly is *mind*, but the sentence beginning '*but having*' is applicable only to Antoninus..

²³ Present and entire, ready and undistracted.

²⁴ As Agrippa said, The Christian Paul was brought for trial before the Roman governor Agrippa, who, on hearing the prisoner's defence, said to him "Almost thou persuadest me to be a Christian."

²⁵ The first divine brothers, For an explanation of 'divine,' see p. 76, n. 65. It was customary for a Roman emperor to associate some colleague with him in the government, who received the title of Cæsar. Marcus Aurelius took for his colleague L. Commodus Verus, who was, like himself, an adopted son of Antoninus Pius. This was the first time that the Emperor and the Cæsar had been brothers. Bacon's estimate of the virtues of the Antonines is a true one: and his opinion of the prosperity of the Roman world during the period under discussion is confirmed by Gibbon, who says, "If a man were called to fix the period in the history of the world, during which the condition of the human race was most happy and prosperous, he would, without hesitation, name that which elapsed from the death of Domitian to the accession of Commodus. The vast extent of the Roman world was governed by absolute power, under the guidance of virtue and wisdom. The labours of these monarchs were overpaid.....by the exquisite delight of beholding the general happiness of which they were the authors."—Ch. 3.

Martial his Virgil; and Marcus Aurelius Antoninus; whereof the latter, who obscured his colleague and survived him long, was named the Philosopher: who, as he excelled all the rest in learning, so he excelled them likewise in perfection of all royal virtues; insomuch as Julianus²⁶ the emperor, in his book intituled *Cæsares*, being as a pasquil²⁷ or satire to deride all his predecessors, feigned that they were invited to a banquet of the gods, and Silenus the jester sat at the nether end of the table, and bestowed a scoff on every one as they came in; but when Marcus Philosophus²⁸ came in, Silenus was gravelled²⁹ and out of countenance, not knowing where to carp at him; save at the last he³⁰ gave a glance at his patience towards his wife. And the virtue of this prince, continued with³¹ that of his predecessor, made the name of Antoninus so sacred in the world, that though it were extremely dishonoured in Commodus, Caracalla, and Heliogabalus, who all bare the name, yet when Alexander Severus refused the name because he was a stranger to the family, the senate with one acclamation said, *Let the name of Antoninus be as the name of Augustus.*³² In such renown and veneration was the name of these two princes in those days, that they would have had it as a perpetual addition in all the emperors' style.³³ In this emperor's time also the³⁴ Church for the most part was in peace; so as in this sequence of six princes we do see the blessed effects of learning in sovereignty, painted forth in the greatest table³⁵ of the world.

²⁶ *Julianus*, p. 72, n. 43. For an account of his book, see Gibbon, ch. 24.

²⁷ *Pasquil*, a satire. The word originally signified a certain post in Rome to which libels and defamatory verses were affixed. W.

²⁸ *Marcus Philosophus*, Marcus Aurelius, named the philosopher. He was a strict disciple of the Stoic School. He has left a volume of *Meditations*, for an account of which, see Matthew Arnold's *Essays in Criticism*.

²⁹ *Gravelled*, puzzled.

³⁰ *He gave a glance at*, he hinted at, p. 79. n. 97. *His wife*, p. 34, n. 17.

³¹ *Continued with*, succeeding to.

³² *Let the name, &c.* The name Augustus was originally a *personal* title, conferred on the first emperor: but it was afterwards adopted as an *official* title by all his successors. The Senate wish now to commemorate the virtues of Antoninus by making his name one of the permanent imperial titles.

³³ *Style*, title.

³⁴ It appears on the contrary that the Christians suffered somewhat severely under the reign of Marcus. See Gibbon, ch. 16.

³⁵ *Table*, picture. The Latin word 'tabula' is used in this sense. Cp. *tablet*, in the next line.

9. But for a tablet or picture of smaller volume³⁶ (not presuming to speak of your Majesty that liveth), in my judgement the most excellent is that of Queen Elizabeth,³⁷ your immediate predecessor in this part of Britain; a prince that, if Plutarch³⁸ were now alive to write lives by parallels, would trouble him I think to find for her a parallel amongst women. This lady was endued with learning³⁹ in her sex singular, and rare even amongst masculine princes; whether we speak of learning, of language, or of science, modern or ancient, divinity or humanity⁴⁰: and unto the very last year of her life she accustomed⁴¹ to appoint set hours for reading, scarcely any young student in an university more daily or more duly. As for her government, I assure myself, I shall not exceed, if I do affirm that this part of the island never had forty-five years of better times; and yet not through the calmness of the season,⁴² but through the wisdom of her regiment. For if there be considered of⁴³ the one side, the truth of religion established, the constant peace and security, the good administration of justice, the temperate use of the prerogative,⁴⁴ not slackened, nor much strained, the flourishing state of learning, sortable⁴⁵ to so excellent a patroness, the convenient estate⁴⁶ of wealth and means, both

³⁶ Volume, size. The word means properly 'any thing rolled up': hence it signifies properly 'a book,' since books were at first scrolls of parchment, rolled round a stick.

³⁷ Queen Elizabeth, for a similar eulogy of Elizabeth by a contemporary, cp. the last speech of Cranmer at the end of Shakspeare's Henry VIII. The student will find an admirable commentary on this passage in Green's very vivid description of the England of Elizabeth. See *History of the English People*, Vol. ii., pp. 295, sq. Bacon himself wrote a treatise on the fortunate memory of Elizabeth, Queen of England.

³⁸ Plutarch, a Greek writer born A. D. 40, wrote biographies in pairs: he selected some eminent Greek and Roman, gave an account of each, and ended with a comparison of the two.

³⁹ Endued with learning, for the extent of the learning of women in the sixteenth century, see Macaulay's *Essay on Bacon*.

⁴⁰ Humanity, secular learning, cp. p. 39, l. 3.

⁴¹ Accustomed, cp. 'have used,' p. 59, l. 17.

⁴² The season, the time. Regiment, government.

⁴³ Of, we should now say 'on.'

⁴⁴ The prerogative, this word describes such powers as the sovereign can exercise without asking the sanction of Parliament.

⁴⁵ Sortable, suitable.

⁴⁶ Estate, condition. Bacon means to say that wealth was equally distributed.

of crown and subject, the habit of obedience, and the moderation of discontents ; and there be considered on the other side the differences of religion, the troubles of neighbour countries, the ambition of Spain, and opposition of Rome ; and then that she was solitary and of herself : these things I say considered, as I could not have chosen an instance so recent and so proper, so I suppose I could not have chosen one more remarkable or eminent to the purpose now in hand, which is concerning the conjunction of learning in the prince with felicity in the people.

10. Neither hath learning an influence and operation only upon civil⁴⁷ merit and moral virtue, and the arts or temperature⁴⁸ of peace and peaceable government ; but likewise it hath no less power and efficacy in enablement towards martial and military virtue and prowess ; as may be notably represented in the examples of Alexander the Great and Cæsar the dictator, mentioned before, but now in fit place to be resumed : of whose virtues and acts in war there needs no note⁴⁹ or recital, having been the wonders of time in that kind : but of their affections towards⁵⁰ learning, and perfections in learning, it is pertinent to say somewhat,

11. Alexander was bred and taught under Aristotle the great philosopher, who dedicated divers of his books of philosophy unto him : he was attended with⁵¹ Callisthenes, and divers other learned persons, that followed him in camp, throughout his journeys and conquests. What price and estimation he had learning in doth notably appear in these three particulars : first, in the envy he used to express that he bare towards Achilles,⁵² in this, that he had so good a trumpet of his praises as Homer's verses : secondly, in the judgement or solution he gave touching that precious cabinet⁵³ of Darius, which was found among his jewels ; whereof question was made what thing was worthy

⁴⁷ Civil, opposed to military. We still use the word 'civilian' of all who are not soldiers.

⁴⁸ Temperature, p. 28, n. 59.

⁴⁹ Note, account.

⁵⁰ Affections towards, their love of and zeal for learning.

⁵¹ Attended with, we should say 'by.' Callisthenes, a nephew of Aristotle, was a philosopher and writer of history. He composed an account of Alexander's exploits.

⁵² Achilles, the hero of the Iliad, the poem in which Homer has described the Trojan war.

⁵³ Cabinet, a box used for keeping jewels or other valuables in.

to be put into it ; and he gave his opinion for Homer's works : thirdly, in his letter to Aristotle, after he had set forth⁵⁴ his books of nature, wherein he expostulateth with him for publishing the secrets or mysteries of philosophy ; and gave him to understand that himself esteemed it more to excel other men in learning and knowledge than in power and empire. And what use he had of learning⁵⁵ doth appear, or rather shine, in all his speeches and answers, being full of science and use of science,⁵⁶ and that in all variety.

12. And herein again it may seem a thing scholastical,⁵⁷ and somewhat idle, to recite things that every man knoweth ; but yet, since the argument I handle leadeth me thereunto, I am glad that men shall perceive I am as willing to flatter (if they will so call it) an Alexander, or a Cæsar, or an Antoninus, that are dead many hundred years since, as any that now liveth : for it is the displaying of the glory of learning in sovereignty that I propound to myself, and not an humour⁵⁸ of declaiming in any man's praises. Observe then the speech he used of Diogenes, and see if it tend not to the true state⁵⁹ of one of the greatest questions of moral philosophy ; whether the enjoying of outward things, or the contemning of them, be the greatest happiness : for when he saw Diogenes⁶⁰ so perfectly contented with so little, he said to those that mocked at his condition, *Were I not Alexander, I would wish to be Diogenes.* But Seneca inverteth it, and saith ; *There were more things which Diogenes would have refused, than those were which Alexander could have given or enjoyed.*

13. Observe again that speech which was usual with him, *That he felt his mortality chiefly in two things, sleep and lust ;* and see if it were not a speech extracted out of the depth of natural philosophy, and liker to have comen out of the mouth of Aristotle or Democritus, than from Alexander.⁶¹

⁵⁴ Set forth, published his treatise on physics.

⁵⁵ What use he had of learning, to what extent he had profited by learning. The Latin translation has 'How well he has cultivated his mind by learning.'

⁵⁶ Use of science, application of knowledge.

⁵⁷ Scholastical, pedantic.

⁵⁸ Humour, p. 72, n. 46.

⁵⁹ State, determination, solution.

⁶⁰ Diogenes, p. 34, n. 16. He is the type of those who despise fortune : and Alexander thought, that next to himself, Diogenes was the happiest man in the world. Seneca, on the other hand, thought that the lot of Diogenes was a happier one than that of Alexander.

⁶¹ The Latin translation adds 'since deficiency and superfluity, which are

14. See again that speech of humanity⁶² and poesy ; when upon the bleeding of his wounds, he called unto him one of his flatterers, that was wont to ascribe to him divine honour, and said, *Look, this is very blood*⁶³ ; *this is not such a liquor as Homer speaketh of, which ran from Venus' hand, when it was pierced by Diomedes.*

15. See likewise his readiness in reprehension of logic,⁶⁴ in the speech he used to Cassander, upon a complaint that was made against his father Antipater : for when Alexander happed to say, *Do you think these men would have come from so far to complain, except they had just cause of grief ?* and Cassander answered, *Yea, that was the matter,*⁶⁵ *because they thought they should not be disproved* ; said Alexander laughing : *See the subtleties of Aristotle, to take a matter both ways, for and against, &c.*

16. But note again how well he could use the same art, which he reprehended, to serve his own humour : when bearing a secret grudge to⁶⁶ Callisthenes, because he was against the new ceremony of his adoration, feasting one night where the same Callisthenes was at the table, it was moved by some after supper, for entertainment sake, that Callisthenes, who was an eloquent man, might speak of some theme or purpose⁶⁷ at his own choice ; which Callisthenes did ; choosing the praise of the Macedonian nation for his discourse, and performing the same with so good manner as⁶⁸ the hearers were much ravished : whereupon Alexander, nothing pleased, said, *It was easy to be eloquent upon so good a subject : but saith he, Turn your style,*⁶⁹ expressed by weariness and intemperance are, as it were, earnests of mortality. *Democritus*, p. 53, n. 36.

⁶² *Humanity*, knowledge of man, as opposed to knowledge of nature. Cp. Bk. 2, 5, 2.

⁶³ *This is very blood*, the liquid which ran in the veins of the gods was called *ichor*. Alexander said, "It is mere flattery to call me a god : I do not bleed ichor, when I am wounded."

⁶⁴ *Logic*, i.e. subtilty in argument.

⁶⁵ *That was the matter*, that is just what has encouraged them to come. They know that, so far away from home, there will be no one to contradict their assertions.

⁶⁶ *To*, we should say 'against.'

⁶⁷ *Purpose*, plan.

⁶⁸ *With so good manner as*, in such a good manner that.

⁶⁹ *Turn your style*, speak on the opposite side. The 'style' was the instrument with which the Romans wrote on wax. One end of it was sharp; the other end, which was flat, was used for erasing what had been written. So 'to turn the style' meant in Latin 'to erase.'

and let us hear what you can say against us : which Callisthenes presently undertook, and did with that sting⁷⁰ and life, that Alexander interrupted him and said, *The goodness of the cause made him eloquent before, and despite⁷¹ made him eloquent then again.*

17. Consider further, for tropes⁷² of rhetoric, that excellent use of a metaphor or translation,⁷³ wherewith he taxed⁷⁴ Antipater, who was an imperious and tyrannous governor : for when one of Antipater's friends commended him to Alexander for his moderation, that he did not degenerate, as his other lieutenants did, into the Persian pride, in use of purple, but kept the ancient habit of Macedon, of black ; *True* (saith Alexander), *but Antipater is all purple within.*⁷⁵ Or that other, when Parmenio came to him in the plain of Arbela,⁷⁶ and showed him the innumerable multitude of his enemies, specially as they appeared by the infinite number of lights as it had been⁷⁷ a new firmament of stars, and thereupon advised him to assail them by night : whereupon he answered, *That he would not steal the victory.*

18. For matter of policy, weigh that significant distinction, so much in all ages embraced,⁷⁸ that he made between his two friends Hephaestion and Craterus, when he said, *That the one loved Alexander, and the other loved the king :* describing the principal difference

⁷⁰ *With that sting*, with such bitterness.

⁷¹ *Despite*, spite. Alexander showed by this answer that he too could 'take a matter both ways.' He thought that Callisthenes could find nothing to say against the Macedonians : when he found that he could, he accounted for it by saying 'that spite gave him eloquence.'

⁷² *Tropes*, figures.

⁷³ *Translation*, this word is the exact Latin equivalent of the Greek word 'metaphor.' Both words mean 'a transference.' A metaphor is 'a transference' of a word from its original to a figurative sense. 'A translation,' in the sense in which we ordinarily use the word, is 'a transference' of meaning from one language to another.

⁷⁴ *Taxed*, censured. Cp. *untaxed*, p. 82, l. 1.

⁷⁵ *Is all purple within*, is full of proud thoughts. Purple, in the East, was the colour of the Imperial robes. We still talk of a member of a Royal family as 'born in the purple.'

⁷⁶ *Arbela*, a city near the Tigris, near which Alexander defeated the Persian King Darius, B.C. 330.

⁷⁷ *As it had been*, like.

⁷⁸ *Embraced*, assented to.

of princes' best servants, that some in affection love their person, and other in duty love their crown.⁷⁹

19. Weigh also that excellent taxation⁸⁰ of an error, ordinary with counsellors of princes, that they counsel their masters according to the model of their own mind and fortune, and not of their masters'; when upon Darius' great offers Parmenio had said, *Surely I would accept these offers, were I as Alexander;* saith Alexander, *So would I were I as Parmenio.*

20. Lastly, weigh that quick and acute reply, which he made when he gave so large gifts to his friends and servants, and was asked what he did reserve for himself, and he answered, *Hope*⁸¹: weigh, I say, whether he had not cast up his account aright, because *hope* must be the portion of all that resolve upon great enterprises. For this was Cæsar's portion when he went first into Gaul, his estate⁸² being then utterly overthrown with largesses. And this was likewise the portion of that noble prince, howsover transported with ambition, Henry Duke of Guise, of whom it was usually said, that he was the greatest usurer in France, because he had turned all his estate into obligations.⁸³

21. To conclude therefore: as certain critics are used to say hyperbolically, *That if all sciences were lost they might be found in Virgil*, so certainly this may be said truly, there are the prints and footsteps⁸⁴ of learning in those few speeches which are reported of this prince: the admiration of whom, when I consider him not as Alexander the Great, but as Aristotle's scholar,⁸⁵ hath carried me too far.

⁷⁹ *Their crown, i.e. their office.* Some men love a king as a personal friend; others love the institution of monarchy, though they have no personal regard for the reigning king.

⁸⁰ *Taxation, censure.* The point of Alexander's reply is, that conduct, which may be perfectly becoming in a subject, may be beneath the dignity of a king.

⁸¹ *Hope,* the story is told inaccurately. When Alexander was asked what he kept for himself, he replied not "*hope*," but "*what I hope for*," i.e. all the wealth which I expect to get by my conquests. E.

⁸² *His estate, &c.,* he having spent all his own property in making presents to his soldiers.

⁸³ *He had turned all his estate into obligations,* he had spent all his money in securing friends. '*Obligations*,' used in its literal sense of '*binding*' people to him by his liberality. He was a usurer, because he expected to receive interest on his money, in the shape of services from those who had received it. Henry, Duke of Guise, was uncle to Mary Queen of Scots.

⁸⁴ *The prints and footsteps,* the signs.

⁸⁵ *Not as Alexander, &c., i.e. not as a powerful conqueror, but as a student.*

22. As for Julius Cæsar, the excellency of his learning needeth not to be argued⁸⁶ from his education, or his company,⁸⁷ or his speeches; but in a further degree doth declare itself in his writings and works; whereof some are extant and permanent,⁸⁸ and some unfortunately perished. For first, we see there is left unto us that excellent history of his own wars, which he intituled only a *Commentary*, wherein all succeeding times have admired the solid weight of matter, and the real passages⁸⁹ and lively images of actions and persons, expressed in the greatest propriety of words and perspicuity of narration that ever was; which that it was not the effect of a natural gift, but of learning and precept, is well witnessed by that work of his intituled *On Analogy*, being a grammatical philosophy, wherein he did labour to make this same *conventional speech* to become *correct speech*, and to reduce custom of speech to congruity of speech⁹⁰; and took as it were the pictures of words from the life of reason.

23. So we receive from him, as a monument both of his power and earning, the then reformed computation of the year; well expressing⁹¹ that he took it to be as great a glory to himself to observe and know the law of the heavens, as to give law to men upon the earth.

⁸⁶ Argued, inferred.

⁸⁷ Company, companions. Cp. the common saying "A man is known by his friends."

⁸⁸ Permanent, equivalent to 'extant.'

⁸⁹ Real passages, vivid descriptions; by 'real' is meant 'true to the life.'

⁹⁰ Congruity of speech, fitness of speech; i.e. the use of words appropriate to describe the things intended. In the Latin translation the passage stands thus: 'Wherein he did labour to make conventional speech to become correct speech: he wished to substitute an appropriate and correct habit of speech for careless speech, and to make words, which are the images of things, suit the things themselves, instead of obeying simply the will of the multitude.'

Words are 'the pictures' of things, because they are the symbols by which we represent things. Cæsar employed such words as the exercise of his reason told him were true pictures of what he wished to express.

It appears, then, that the object of the book was to remove the errors of vulgar language, and to show that the language of a people may be specially adapted to a clear and appropriate expression of ideas, cp. Bk. 2, xvi. 4, n. 11. We cannot however speak with any certainty about the book. Bacon calls it here 'a philosophy of grammar'; elsewhere he speaks of it as a mere collection of precepts for speaking correctly.

⁹¹ Expressing, showing. Cæsar found that the old calendar had anticipated the true time by sixty-seven whole days.

24. So likewise in that book of his, *Anti-Cato*,⁹³ it may easily appear that he did aspire as well to victory of wit as victory of war: undertaking therein a conflict against the greatest champion with the pen that then lived, Cicero the orator.

25. So again in his book of Apophthegms which he collected, we see that he esteemed it more honour to make himself but a pair of tables,⁹³ to take the wise and pithy words of others, than to have every word of his own to be made an apophthegm or an oracle; as vain princes, by custom of flattery, pretend to do. And yet if I should enumerate divers of his speeches, as I did those of Alexander, they are truly such as Salomon noteth, when he saith, *The words of the wise are as goads and as nails driven deep in*: whereof I will only recite three, not so delectable⁹⁴ for elegancy, but admirable for vigour and efficacy.

26. As first, it is reason he be thought⁹⁵ a master of words, that could with one word appease a mutiny in his army, which was thus. The Romans, when their generals did speak to their army, did use the word *Soldiers*, but when the magistrates spake to the people, they did use the word *Citizens*. The soldiers were in tumult, and seditiously prayed to be cashiered⁹⁶; not that they so meant, but by expostulation thereof to draw Cæsar to other conditions; wherein he being resolute not to give way, after some silence, he began his speech, *I, citizens*, which did admit them already cashiered; wherewith they were so surprised, crossed, and confused, as they would not suffer him to go on in his speech, but relinquished their demands, and made it their suit⁹⁷ to be again called by the name of *Soldiers*.

⁹³ Cæsar's *Anti-Cato*, was a reply to a panegyric which Cicero had written on Cato the chief of the republican party, and therefore an opponent of Cæsar. See p. 21, n. 6.

⁹⁴ To make himself but a pair of tables, to turn himself into a pair of tablets, i.e. to record. The tablets were the slips of wood covered with wax, on which the Romans wrote. They were folded, and the writing was preserved by the tablets having projecting rims.

⁹⁵ Delectable, pleasing.

⁹⁶ It is reason he be thought, It is reasonable to consider him.

⁹⁸ Cashiered, discharged. We apply the word now to a soldier dismissed from the army with disgrace. Not that they so meant, &c., i.e. not really wishing to be discharged, but hoping that, by demanding their discharge, they would induce Cæsar to come to terms. 'Expostulation' is no longer used in the literal sense of 'demand.'

⁹⁷ Made it their suit, requested.

27. The second speech was thus : Cæsar did extremely affect⁹⁸ the name of king ; and some were set on as he passed by, in popular acclamation to salute him king. Whereupon, finding the cry weak and poor,⁹⁹ he put it off thus, in a kind of jest, as if they had mistaken his surname ; *I am not King, but Cæsar*; a speech, that if it be searched, the life and fulness of it can scarce be expressed. For, first, it was a refusal of the name, but yet not serious : again, it did signify an infinite confidence and magnanimity, as if he presumed Cæsar was the greater title ; as by his worthiness it is come to pass till this day. But chiefly it was a speech of great allurement toward¹ his own purpose ; as if the state did strive with him but for a name,² whereof mean families were vested ;³ for *King* was a surname with the Romans, it is with us.

28. The last speech which I will mention was used to Metellus : when Cæsar, after war declared,⁴ did possess himself of the city of Rome ; at which time entering into the inner treasury to take the money there accumulate,⁵ Metellus being tribune forbade him. Whereto⁶ Cæsar said, *That if he did not desist, he would lay him dead in the place.* And presently taking himself up,⁷ he added, *Young man, it is harder for me to speak it than to do it.* A speech compounded of the greatest terror⁸ and greatest clemency that could proceed out of the mouth of man.

29. But to return and conclude with him,⁹ it is evident himself knew well his own perfection in learning, and took it upon him¹⁰ ; as

⁹⁸ *Did extremely affect*, was very desirous of obtaining.

⁹⁹ *Poor*, uttered only by a few.

¹ *Of great allurement toward*, well calculated to bring about.

² *But for a name*, the Latin translation adds—"for he had long been possessed of the power of a king."

³ *Whereof mean families were vested*, the name *King* was borne by people of obscure birth.

⁴ *After war declared*, after he had declared war against Pompey and the Senatorial party. The issue of this war was that Cæsar obtained supreme power in Rome. The idiom is a Latin one.

⁵ *Accumulate*, p. 58, n. 62.

⁶ *Whereto*, to whom.

⁷ *Taking himself up*, checking himself.

⁸ *Terror*, used of the fear inspired, and not, as usually, of the fear felt.

⁹ *Conclude with him*, finish my remarks about him.

¹⁰ *Took it upon him*, assumed.

appeared when, upon occasion that some spake¹¹ what a strange resolution it was in Lucius Sylla¹² to resign his dictatorship ; he scoffing at him, to his own advantage, answered, *That Sylla could not skill of letters, and therefore knew not how to dictate.*

30. And here it were fit to leave this point, touching the concurrence of military virtue and learning (for what example should come with any grace after those two of Alexander and Cæsar ?), were it not in regard of the rareness of circumstance, that I find in one other particular,¹³ as that which¹⁴ did so suddenly pass from extreme scorn to extreme wonder : and it is of Xenophon¹⁵ the philosopher, who went from Socrates' school into Asia, in the expedition of Cyrus the younger against King Artaxerxes. This Xenophon at that time was very young, and never had seen the wars¹⁶ before ; neither had any command in the army, but only followed the war as a voluntary,¹⁷ for the love and conversation¹⁸ of Proxenus his friend. He was present when Falinus came in message¹⁹ from the great king to the Grecians, after that Cyrus was slain in the field, and they a handful of men left to themselves in the midst of the king's territories, cut off from their country

¹¹ *Spake*, p. 49, n. 9.

¹² *Lucius Sylla* was elected perpetual dictator, B. C. 82, but resigned power B. C. 79. With this passage cp. the 15th *Essay* : "I have noted that some witty and sharp speeches, which have fallen from princes, have given fire to seditions. Cæsar did himself infinite hurt in that speech : *Sylla knew nothing of letters, and therefore could not dictate* ; for it did utterly cut off that hope, which men had entertained, that he would at one time or other, give over his Dictatorship." *Dictate*, command : wield the power of a dictator.

¹³ Particular, instance.

¹⁴ As that which, in this respect that it, &c. It explains 'rareness of circumstance.'

¹⁵ *Xenophon*, B.C. 401 the younger Cyrus raised an army, largely composed of Greeks, with a view of dethroning his brother Artaxerxes, king of Persia. Cyrus was defeated and killed at Cunaxa, near Babylon. The Greek generals were inveigled into a conference by Artaxerxes, and murdered : and Xenophon led the Greek army home. The remark which Bacon attributes to Xenophon (p 94.) was not really made by him.

¹⁶ *Seen the wars*, had any experience of war. We still speak of "seeing service."

¹⁷ A voluntary, a volunteer.

¹⁸ Conversation, society.

¹⁹ In message, as the bearer of a message. The great king, this title was generally given to the king of Persia. The Greeks of ten called him simply 'The king.'

by many navigable rivers, and many hundred miles. The message imported that they should deliver up their arms and submit themselves to the king's mercy. To which message before answer was made, divers of the army conferred familiarly with Falinus; and amongst the rest Xenophon happened to say, *Why, Falinus, we have now but these two things left, our arms and our virtue²⁰; and if we yield up our arms, how shall we make use of our virtue?* Whereto Falinus smiling on him said, *If I be not deceived, young gentleman, you are an Athenian: and I believe you study philosophy, and it is pretty that you say: but you are much abused,²¹ if you think your virtue can withstand the king's power.* Here was the scorn; the wonder followed: which was, that this young scholar, or philosopher, after all the captains were murdered in parley by treason, conducted those ten thousand foot, through the heart of all the king's high countries,²² from Babylon to Grecia in safety, in despite of all the king's forces, to the astonishment of the world, and the encouragement of the Grecians in times succeeding to make invasion upon the kings of Persia; as was after purposed by Jason²³ the Thessalian, attempted by Agesilaus²⁴ the Spartan, and achieved by Alexander²⁵ the Macedonian, all upon the ground of²⁶ the act of that young scholar.

VIII. Pp. 94—103. Bacon now proceeds to demonstrate the good effects of knowledge upon the character of the individual. Learning refines and softens the character. It produces cautiousness in judgment. It removes the fear of death and poverty. It provides a remedy for all morbid states of mind. It incites men to continual self-improvement: knowledge and goodness go together. Knowledge, too, is power: and it is power of the highest kind, for the dignity of power is proportioned to the dignity of that over which it is exercised, and the power, which is given by knowledge, is power over the minds of others. The possession of learning is a means of livelihood: and, as for pleasure, intellectual pleasure is the highest of all pleasures, for it alone never palls.

²⁰ *Virtue, courage, cp. l 10.*

²¹ *Abused, deceived.*

²² *High countries*, the inland districts—those far away from the sea.

²³ *Jason of Pheræ had intended to invade Persia, but was assassinated before he had put his plan into execution, B.C. 370.*

²⁴ *Agesilaus the Spartan ravaged the western satrapies of Persia, B.C. 396-5, but, before he had accomplished much, was recalled home.*

²⁵ *Alexander the Macedonian, Alexander the Great, p. 85, § 11.*

²⁶ *Upon the ground of*, we should now say '*on the strength of*'. The meaning is, that these three men were all incited by the example of Xenophon.

Lastly, all men are anxious to leave behind some memorials of themselves in the world : and what memorials are more lasting than books ? Books, too, are the only memorials which are not barren. It is worthy of notice that even materialistic philosophers have allowed immortality to the mind.

Bacon concludes by saying that he is fully conscious that his arguments will not suffice to give to learning the first place in the estimation of the vulgar : still, spite of popular prejudices, he is certain that the possession of knowledge will always be its own justification.

VIII. I. To²⁷ proceed now from imperial and military virtue²⁸ to moral and private virtue ; first, it is an assured truth, which is contained in the verses,

*Without doubt a faithful study of the liberal arts
Softens and humanises the character.*

It taketh away the wildness and barbarism and fierceness of men's minds ; but indeed the accent had need be upon *faithful* : for a little superficial learning doth rather work a contrary effect. It taketh away all levity, temerity, and insolency, by copious suggestion of all doubts and difficulties, and acquainting²⁹ the mind to balance reasons on both sides, and to turn back the first offers³⁰ and conceits of the mind, and to accept of nothing but examined³¹ and tried. It taketh away vain admiration of anything, which is the root of all weakness. For all things are admired either because they are new, or because they are great. For novelty, no man that wadeth³² in learning or contemplation thoroughly, but will find that printed in his heart, *There is nothing new on the earth*. Neither can³³ any man marvel at the

²⁷ With this passage, cp. p. 28, § 4, and p. 77, § 2.

²⁸ *Imperial and military virtue*, proficiency in the arts of government and war.

²⁹ *Acquainting*, accustoming.

³⁰ *The first offers*, the ideas which first present themselves. *Conceits*, ideas.

³¹ *Nothing but examined*, nothing but what has been examined. It is a Latin idiom. With this passage, cp. Pope's *Essay on Criticism*, v. 215.

A little learning is a dangerous thing;

Drink deep, or taste not the Pierian spring:

There shallow draughts intoxicate the brain,

And drinking largely sobers us again.

³² *Wadeth*, 'to wade' is properly to walk in water. 'To wade thoroughly in learning' is 'to study deeply.'

³³ *Neither can, &c.* This is given as an illustration of the remark just made. The dancing of dolls is a type of the things which excite the wonder of the vulgar, but which appear simple enough to those who know the means by which they are effected.

play of puppets, that goeth behind the curtain, and adviseth³⁴ well of the motion. And for magnitude, as Alexander the Great, after that he was used to great armies, and the great conquests of the spacious provinces in Asia, when he received letters out of Grecce, of some fights and services³⁵ there, which where commonly for a passage,³⁶ or a fort, or some walled town at the most, he said, *It seemed to him, that he was advertised³⁷ of the battles of the frogs and mice, that the old tales went of.*³⁸ So certainly, if a man meditate much upon the universal frame of nature, the earth with men upon it (the divineness of souls except³⁹) will not seem much other than an ant-hill, whereas⁴⁰ some ants carry corn, and some carry their young, and some go empty, and all to and fro⁴¹ a little heap of dust. It taketh away or mitigateth fear of death or adverse fortune; which is one of the greatest impediments of virtue, and imperfections of manners.⁴² For if a man's mind be deeply seasoned with the consideration of the mortality and corruptible nature of things, he will easily concur with Epictetus, who went forth one day and saw a woman weeping for her pitcher of earth that was broken, and went forth the next day and saw a woman weeping for her son that was dead, and thereupon said, *Festerday I saw a brittle thing broken, to-day a mortal dead.*⁴³ And therefore Virgil did

³⁴ *Adviseth*, informs himself about. The Latin translation explains the meaning: "No one will be much astonished at the play of puppets, who puts his head behind the curtain, and sees the contrivances and the threads by which the puppets are moved."

³⁵ *Services*, battles. We talk of a soldier 'going on service,' and 'seeing service.'

³⁶ *For a passage*, viz. over a river.

³⁷ *Advertised*, informed.

³⁸ *Went of*, told of. We still say—'So the story went' or 'So the story ran.'

³⁹ *The divineness of souls except*, the immortality of the soul can never be regarded as a trifling subject.

⁴⁰ *Whereas*, on which.

⁴¹ *To and fro*, used here as a preposition. It is generally used adverbially, signifying 'backwards and forwards.' '*Fro*' is the same as '*from*'.

⁴² *Manners*, character.

⁴³ Epictetus means that the death of a man is as natural as the breaking of a clay vessel. In the 2nd Essay, Bacon says—"The fear of death, as a tribute due unto nature, is weak." Epictetus was a Stoic, born at Hierapolis in Phrygia. He flourished during the reign of Domitian.

excellently and profoundly couple the knowledge of causes and the conquest of all fears together, as *concomitants*.

*Happy the man who doth the causes know
Of all that is : serene he stands, above
All fears ; above the inexorable fate,
And that insatiate gulf that roars below.*

2. It were too long to go over the particular⁴⁴ remedies which learning doth minister to all the diseases of the mind⁴⁵; sometimes purging the ill humours, sometimes opening the obstructions, sometimes helping digestion, sometimes increasing appetite, sometimes healing the wounds and exulcerations thereof, and the like; and therefore I will conclude with that which hath *the essence of the whole*; which is, that it disposeth the constitution of the mind not to be fixed or settled in the defects thereof,⁴⁶ but still to be capable and susceptible of growth and reformation. For the unlearned man knows not what it is to descend into himself,⁴⁷ or to call himself to account, nor the pleasure of *that most pleasant life, feeling one's self grow better every day*. The good parts he hath⁴⁸ he will learn to show to the full, and use them dexterously, but not much to increase them. The faults he hath he will learn how to hide and colour⁴⁹ them, but not much to amend them; like an ill mower, that mows on still,⁵⁰ and never whets his scythe. Whereas with the learned man it fares otherwise, that he doth ever intermix the correction and amendment of his mind with the use and employment thereof. Nay further, in general and in sum, certain it is that *Truth* and *Goodness* differ but

⁴⁴ Cp. *Essay 50*. "Nay there is no stand (hindrance) or impediment in the wit, but may be wrought out by fit studies, like as diseases of the body may have appropriate exercises...every defect of the mind may have a special receipt."

⁴⁵ Obs. that the diseases of the mind are expressed in terms which properly denote bodily diseases. Learning at one time removes morbid affections of the mind: sometimes remedies defects (see *Bk. 2, viii. 2*): sometimes enables the mind to coördinate knowledge: sometimes makes it long for more knowledge: sometimes heals the scars that have been left by passion or sorrow.

⁴⁶ *Thereof*, i.e. in its own defects. Cp. p. 73, l. i.

⁴⁷ *To descend into himself*, to examine himself.

⁴⁸ *The good parts he hath*, any virtues that he possesses.

⁴⁹ *To colour*, to excuse, or give a specious appearance to.

⁵⁰ *That mows on still*, who goes on mowing. For 'still,' cp. p. 57, l. 12.

as the seal and the print⁵¹: for Truth prints Goodness, and they be⁵² the clouds of error which descend in the storms of passions and perturbations.

3. From moral virtue let us pass on to matter of power and commandment,⁵³ and consider whether in right reason there be any comparable with that wherewith knowledge investeth and crowneth man's nature. We see the dignity of the commandment is according to the dignity of the commanded: to have commandment over beasts, as herdmen have, is a thing contemptible: to have commandment over children, as schoolmasters have, is a matter of small honour: to have commandment over galley-slaves is a disparagement rather than an honour. Neither is the commandment of tyrants much better, over people which have put off the generosity⁵⁴ of their minds: and therefore it was ever holden that honours in free monarchies⁵⁵ and commonwealths had a sweetness more than in tyrannies, because the commandment extendeth more over the wills of men, and not only over their deeds and services. And therefore, when Virgil putteth himself forth⁵⁶ to attribute to Augustus Cæsar the best of human honours, he doth it in these words:

*Moving in conquest onward, at his will
To willing peoples he gives laws, and shapes
Through worthiest deeds on earth his course to Heaven.*

But yet the commandment of knowledge is yet higher than the com-

⁵¹ Print, i.e. the impression made by the seal. Goodness is to knowledge, as an impression is to the seal: it is knowledge which makes men good. See. p. 68, n. 23.

⁵² They be, &c. The Latin translation has—"While, on the other hand, the storms of vice burst forth from the clouds of error." Bacon means to say that, just as knowledge produces goodness, so error or ignorance produces vice. What Bacon says here is partly, though not altogether, true. In virtue there is both an intellectual and a moral element—the perception of what is right, and the will to do it. Men do sometimes deliberately what they know to be wrong: but vicious actions may, perhaps, more often be attributed either to ignorance of what is right, or to a want of self-control. Cp. *Essay* 38.

⁵³ Commandment, authority.

⁵⁴ Generosity, the noble feelings. We use the word now in the special sense of 'liberality.' It means properly of 'noble birth,' and so came to signify generally 'nobility.' In the Latin translation, it is '*a servile people!*'

⁵⁵ Free monarchies, those in which the authority of the ruler is submitted to voluntarily.

⁵⁶ Putteth himself forth, strives his utmost.

mandment over the will: for it is a commandment over the reason, belief, and understanding of man, which is the highest part of the mind, and giveth law to the will itself.⁵⁷ For there is no power on earth which setteth up a throne or chair of estate⁵⁸ in the spirits and souls of men, and in their cogitations, imaginations, opinions, and beliefs, but knowledge and learning. And therefore we see the detestable and extreme pleasure that arch-heretics, and false prophets, and impostors are transported with, when they once find in themselves that they have a superiority in the faith and conscience⁵⁹ of men; so great⁶⁰ as if they have once tasted of it, it is seldom seen that any torture or persecution can make them relinquish or abandon it. But as this is that which the author of the Revelation⁶¹ calleth the depth or profoundness of Satan, so by argument of contraries, the just and lawful sovereignty over men's understanding, by force of truth rightly interpreted, is that which approacheth nearest to the similitude of the divine rule.

4. As for fortune and advancement, the beneficence of learning is not so confined to give fortune only to states and commonwealths, as⁶² it doth not likewise give fortune to particular persons. For it was well noted long ago, that Homer hath given more men their livings, than either Sylla, or Cæsar, or Augustus ever did, notwithstanding their great largesses and donatives, and distributions of lands to so many legions. And no doubt it is hard to say whether arms or learning have advanced greater numbers. And in case of sovereignty we see, that if arms or descent⁶³ have carried away the kingdom, yet

⁵⁷ *Giveth law to the will itself*, i.e. except when we are carried away by passion, our volitions are determined by our perceptions of what is reasonable. See n. 52. The only reason why we submit our judgment to others is that we believe them to be better informed than ourselves: if they really are so, then our submission is wise, and is an honour to them. But it is a device of the Evil One to lead us into sin, to make us venerate impostors as if they were wise..

⁵⁸ *Estate*, p. 19, n. 89.

⁵⁹ *Have a superiority in the faith and conscience*, control men's beliefs, and determine their ideas of right and wrong.

⁶⁰ *Great*, qualifies 'pleasure,' in l. 7.

⁶¹ *Revelation*, the name of the last book of the Christian Scriptures.

⁶² *As*, that. Learning is not so liberal to states, that it has nothing left for individuals.

⁶³ *Descent*, hereditary right. *Carried away*, obtained. The traditional authority of the Brahman caste is a good illustration of Bacon's remark.

learning hath carried the priesthood, which ever hath been in some competition with empire.

5. Again, for the pleasure and delight of knowledge and learning, it far surpasseth all other in nature. For, shall the pleasures of the affections so exceed⁶⁴ the pleasure of the sense, as much as the obtaining of desire or victory exceedeth a song or a dinner? and must not of consequence the pleasures of the intellect or understanding exceed the pleasures of the affections? We see in all other pleasures there is satiety, and after they be used,⁶⁵ their verdure⁶⁶ departeth; which sheweth well they be but deceits of pleasure,⁶⁷ and not pleasures: and that it was the novelty which pleased, and not the quality. And therefore we see that voluptuous men turn friars, and ambitious⁶⁸ princes turn melancholy. But of knowledge there is no satiety, but satisfaction⁶⁹ and appetite are perpetually interchangeable; and therefore appeareth to be good in itself simply, without fallacy or accident. Neither is that pleasure of small efficacy and contentment to the mind of man, which the poet Lucretius⁷⁰ describeth elegantly,

Suave mari magno, turbantibus æquora ventis, &c.

⁶⁴ So exceed... as much as, i.e. exceed as much as. The superiority of a victory to a dinner is the measure of the superiority of the pleasures of the affections to those of sense. *Of consequence*, consequently. The pleasures of the intellect are as far above those of the affections as the latter are above those of sense. By the *affections* are meant emotions and desires distinct from the bodily appetites.

⁶⁵ After they be used, when we have experienced them for some time.

⁶⁶ Verdure, freshness.

⁶⁷ Deceits of pleasure, unreal pleasures. There are no unreal pleasures. Every feeling, which our consciousness pronounces to be pleasant, is pleasant at the time.

⁶⁸ Alexander sighed for new worlds to conquer: and Charles V. resigned the crown of Spain to his son and retired into a monastery. Cp. *Essay 19*: "We see also that kings that have been fortunate conquerors in their first years, it being not possible for them to go forward infinitely, but that they must have some check or arrest in their fortunes, turn in their latter years to be superstitious and melancholy, as did Alexander the Great, Dioclesian, and in our memory, Charles the Fifth: and others. For he that is used to go forward, and findeth a stop, falleth out of his own favour, and is not the thing he was."

⁶⁹ Satisfaction, full enjoyment. They never pall: however much we have of them, we still wish for more.

⁷⁰ Lucretius, a Roman poet, born about B.C. 95. He wrote a poem 'On the Nature of Things,' expounding and defending the atomistic philosophy. Cp. *Essay I*.

It is a view of delight (saith he) to stand or walk upon the shore side, and to see a ship tossed with tempest upon the sea; or to be in a fortified tower, and to see two battles join upon a plain. But it is a pleasure incomparable, for the mind of man to be settled, landed, and fortified in the certainty of truth; and from thence to descry and behold the errors, perturbations, labours, and wanderings up and down of other men.

6. Lastly, leaving the vulgar arguments, that by learning man excelleth man in that wherein man excelleth beasts; that by learning man ascendeth to the heavens and their motions, where in body he cannot come; and the like; let us conclude with the dignity and excellency of knowledge and learning in that whereunto man's nature doth most aspire, which is immortality or continuance; for to this tendeth generation,⁷¹ and raising of houses and families; to this tend buildings, foundations, and monuments; to this tendeth the desire of memory, fame, and celebration⁷²; and in effect the strength of all other human desires. We see then how far the monuments⁷³ of wit and learning are more durable than the monuments of power or of the hands. For have not the verses of Homer continued twenty-five hundred years, or more, without the loss of a syllable or letter; during which time infinite palaces, temples, castles, cities, have been decayed⁷⁴ and demolished? It is not possible to have the true pictures or statuaes⁷⁵ of Cyrus, Alexander, Cæsar, no nor of the kings or great personages of much later years; for the originals cannot last, and the copies cannot but leese⁷⁶ of the life and truth. But the images of men's wits and knowledges remain in books, exempted from the wrong⁷⁷ of time and capable of perpetual renovation. Neither are they fitly to be called images, because they generate still,⁷⁸ and cast

⁷¹ Generation, the begetting of children. Cp. Bk. 2, xxi. 1.

⁷² Celebration, we should now say 'celebrity.'

⁷³ Cp. the boast of the Latin poet Horace—"I have raised a monument more lasting than brass, and loftier than the kingly structure of the pyramids—one which neither piercing rain, nor raging wind, nor lapse of time can destroy."

⁷⁴ Have been decayed, we should now say 'have decayed.'

⁷⁵ Statuae, statuae is the plural form of the Latin word for statue, the singular form is 'statua,' and is often used by Bacon. His contemporary Shakspere used the form statua, but Anglicised it in the plural Cp. Rich. iii. 3. 7. 25, "like dumb statuaes."

⁷⁶ Leese, p. 53, n. 34.

⁷⁷ The wrong, the injury,

⁷⁸ Still, p. 97, n. 50. With this passage cp. Milton's *Areopagitica*, pp. 5—6.

their seeds in the minds of others, provoking and causing infinite actions and opinions in succeeding ages. So that if the invention of the ship was thought so noble, which carrieth riches and commodities from place to place, and consociateth⁷⁹ the most remote regions in participation of their fruits, how much more are letters to be magnified, which as ships pass through the vast seas of time, and make ages so distant to participate of the wisdom, illuminations, and inventions, the one of the other? Nay further, we see some of the philosophers which were least divine and most immersed in the senses,⁸⁰ and denied generally the immortality of the soul, yet came to this point, that⁸¹ whatsoever motions the spirit of man could act and perform without the organs of the body, they thought might remain after death; which were only those of the understanding, and not of the affection⁸²; so immortal and incorruptible a thing did knowledge seem unto them to be. But we, that know by divine revelation that not only the understanding but the affections purified, not only the spirit but the body changed, shall be advanced to immortality, do disclaim in⁸³ these rudiments of the senses. But it must be remembered, both in this last point, and so it may likewise be needful in other places, that in probation⁸⁴ of the dignity of knowledge or learning, I did in the

Ed. Clarendon Press. "Books are not absolutely dead things, but do contain a potencie of life in them to be as active as that soule was whose progeny they are: nay, they do preserve as in a violl the purest efficacie and extraction of that living intellect that bred them."

⁷⁹ *Consociateth*, joins.

⁸⁰ *Most immersed in the senses*, i.e. materialistic: explaining the functions of the mind by the activity of the senses, and denying the existence of any divine or immortal part in man.

⁸¹ *Came to this point that*, confessed so much that. The Latin translation has—'were compelled by force of truth to allow that.' Bacon is referring here to the doctrine of Aristotle and his followers. Plato had taught the immortality of the individual soul. This Aristotle denied. All the lower functions of the soul, he said, are destroyed by death; but the highest function of the soul, viz. the creative intellect, is indestructible. Therefore though after death the individual ceases to exist, yet the creative intellect is not destroyed, but is resumed into the universal mind.

⁸² *Affection*, p. 100, n. 64.

⁸³ *Do disclaim in*, do renounce. These imperfect suggestions of Aristotle, says Bacon, are nothing to the Christian, for he knows that after death body as well as soul shall be purified, and enjoy immortality: still I have mentioned them, because they are a human testimony to the dignity of knowledge.

⁸⁴ *Probation*, proof. We use the word now in the sense of 'trial.'

beginning separate divine testimony from human, which method I have pursued, and so handled them both apart.

7. Nevertheless I do not pretend, and I know it will be impossible for me, by any pleading of mine, to reverse the judgement, either of Æsop's cock, that preferred the barley-corn before the gem; or of Midas, that being chosen judge between Apollo, president of the Muses, and Pan, god of the flocks, judged for plenty^{ss}; or, of Paris,st that judged for beauty and love against wisdom and power; or of Agrippina,^{s7} *Let him kill his mother, provided that he become Emperor,* that preferred empire with any condition never so detestable; or of Ulysses,^{ss} *who preferred an old woman to immortality,* being a figure of those which prefer custom and habit before all excellency; or of a number of the like popular judgements. For these things must continue as they have been: but so will that also continue whereupon learning hath ever relied, and which faileth not: *Wisdomst is justified by her children.*

^{ss} *Judged for plenty,* decided in favour of plenty. Midas was a king of Phrygia, and it is said that, as a punishment for the judgment referred to in the text, Apollo turned his ears into those of an ass.

st Juno the Goddess of Power, Minerva the Goddess of Wisdom, and Venus the Goddess of Love and Beauty, all claimed the golden apple inscribed '*for the fairest,*' which Discord threw into Heaven. Paris, a Trojan shepherd, was made umpire, and gave the prize to Venus. See Tennyson's *Cænone.*

^{s7} *Agrippina,* mother of the Emperor Nero.

^{ss} Ulysses, the most crafty Greek who joined the expedition against Troy, in the course of his wanderings fell into the hands of the enchantress Calypso, who promised him immortality, if he would stay with her. He preferred to return to his wife Penelope.

st *Wisdom is justified,* &c. i.e. That nothing is better than wisdom is shown by the superiority of those who possess wisdom. This is one of the sayings of Jesus.—*Matthew xi. 19.*

THE
SECOND BOOK OF FRANCIS BACON ;
OF THE PROFICIENCE OR
ADVANCEMENT OF LEARNING,
DIVINE AND HUMAN.

Pp. 104—118. Bacon now proceeds to the second part of his task, (p. 5, § 3), viz., to point out what has been done, and what still remains to be done for the advancement of learning. It especially behoves the king, says Bacon, inasmuch as he is the father of children, to consider what he can do to improve the times in which his posterity will have to live : and, in Bacon's opinion, the efforts of the king will be most wisely directed towards increasing the world's stock of knowledge.

Bacon begins by laying down three general principles, viz. that, for the accomplishment of any end, the instruments whom we employ must be well paid : the means adopted must be directed towards the end in view, for a cripple who keeps to the road will outstrip a runner who leaves it : and, lastly, men must work together. Now, with regard to learning, we have to consider—1, places of learning ; 2, books ; 3, teachers and students. Learning, unless preserved in books and universities, will be scattered and lost, like the water from a spring, which is not gathered and stored in a cistern. Universities must receive such endowments and privileges as will enable the dwellers in them to live a quiet and untroubled life. There must be good libraries : and correct editions of authors, carefully annotated, must be prepared. There must be professors of known subjects, and also professors, the work of whose lives shall be original research.

Bacon notes the following shortcomings to be remedied. All colleges make it their business to fit men for particular professions, to the neglect of general culture. This is like trying to make a tree bear fruit by attending to the branches instead of manuring the roots. General knowledge is to the special arts what the stomach is to the body : and a neglect of it is as fatal to the arts, as starvation would be to the body. Moreover, by following their present course, the Universities fail to supply the state with useful ministers. Cp. p. 17 § 3. Secondly, lecturers should be better paid. Lecturers on special professions should receive at least as much as they could make by the practice of the professions ; otherwise the Universities will not obtain the best men. To starve those who prepare men for practical work is like starving the commissariat of an army. Thirdly, laboratories are wanted for students of natural science. We should imitate the example of Alexander, who paid huntsmen to supply Aristotle with specimens, whilst he was compiling his natural history. Fourthly, the authorities of the University, and princes, and governors should consult and consider, from time to time, whether the

University system can be improved in any respect. For instance, students are brought too young to the study of logic and rhetoric. It is of no use to teach students the arts of valuing and expounding *data*, before their minds are supplied with *data*. Moreover, the standard of instruction is lowered, because it has to be adapted to the capacity of the pupils. The speeches, too, which are delivered in the University and those which are delivered in real life, are delivered under different conditions: so that the University training is no preparation for the business of life. Fifthly, Universities should imitate the example of other corporations, and coöperate with one another. Lastly, men should be appointed to study things as yet imperfectly known. Nothing hinders the advancement of learning so much as the belief that nothing remains to be learned.

The remedying of these deficiencies is 'a royal task,' beyond the power and means of a private individual to accomplish. But it is not beyond the power of an individual to make a preliminary survey of the sciences, and to discover what still remains to be done in each. Such a survey Bacon now proposes to enter upon. Others must criticise the way in which he performs his task, and must decide, after reading his book, whether he imagines deficiencies where there are none, or whether his suggestions are likely to be of practical service, if adopted. If any man object that Bacon is urging impossibilities, let him remember that in time, and by coöperation, many things may be effected which no individual could accomplish in his own life-time. Confidence and exertion will accomplish many tasks from which timid men will shrink. It needs a wise man to distinguish what *is* impossible, from what only *seems* impossible.

To the King.

I. IT might seem to have more convenience,¹ though it come often otherwise to pass (excellent king), that those which are fruitful in their generations,² and have in themselves the foresight of immortality in their descendants, should likewise be more careful of the good estate³ of future times, unto which they know they must transmit and commend over⁴ their dearest pledges. Queen Elizabeth was a sojourner in the world⁵ in respect of her unmarried life, and was a

¹ *To have more convenience*, to be more natural and consistent. Cp. *Essay* viii. : "It were great reason that those that have children should have greatest care of future times, unto which they know they must transmit their dearest pledges."

² *Generations*, p. 101, n. 71.

³ *Estate*, p. 63, n. 88.

⁴ *Commend over*, entrust.

⁵ A *sojourner in the world*, 'a sojourner' is a dweller for a brief period: the term is applied to unmarried people, because they leave no one to represent them when they are dead.

blessing to her own times ; and yet so as the impression of her good government, besides her happy memory,⁶ is not without some effect which doth survive her. But to your Majesty, whom God hath already blessed with so much royal issue, worthy to continue and represent you for ever, and whose youthful and fruitful bed doth yet promise many the like renovations, it is proper and agreeable to be conversant⁷ not only in the transitory parts of good government, but in those acts also which are in their nature permanent and perpetual. Amongst the which (if affection do not transport me⁸) there is not any more worthy than the further endowment of the world with sound and fruitful knowledge. For why should a few received authors stand up like Hercules' columns,⁹ beyond which there should be no sailing or discovering, since we have so bright and benign a star as your Majesty to conduct and prosper us ? To return therefore where we left,¹⁰ it remaineth to consider of what kind those acts are which have been undertaken and performed by kings and others for the increase and advancement of learning : wherein I purpose to speak actively¹¹ without digressing or dilating.

2. Let this ground¹² therefore be laid, that all works are overcome by amplitude of reward, by soundness of direction,¹³ and by the conjunction of labours. The first multiplieth endeavour, the second preventeth error, and the third supplieth¹⁴ the frailty of man. But the principal of these is direction : for *a cripple who keeps to the road outstrips a runner who leaves it* ; and Salomon excellently setteth it

⁶ *Her happy memory*, i.e. the recollection of her suggests the idea of happiness. Cp. p. 84.

⁷ *To be conversant in*, to be acquainted with. Cp. 'to converse,' p. 63, l. 16.

⁸ *If affection do not transport me*, if I am not misled by my enthusiasm for learning.

⁹ *Hercules' columns*, the Straits of Gibraltar which marked the limits of Hercules' wanderings to the west: used metaphorically to denote any limit which cannot be passed.

¹⁰ *Where we left*, to where we left off. These few remarks to the king are a digression.

¹¹ *Actively*, the meaning of the word is explained by 'without digressing or dilating.' The word suggests the idea of one who presses eagerly on towards the goal, without turning to the right or left.

¹² *Ground*, principle; *be laid*, be laid down, or assumed.

¹³ *By soundness of direction*, i.e. by the adoption of judicious and sound measures.

¹⁴ *Supplieth*, assists.

down,¹⁵ *If the iron be not sharp, it requireth more strength; but wisdom is that which prevaileth;* signifying that the invention or election of the mean¹⁶ is more effectual than any enforcement or accumulation of endeavours. This I am induced to speak for that¹⁷ (not derogating from the noble intention of any that have been deservers towards the state of learning) I do observe nevertheless that their works and acts are rather matters of magnificence and memory,¹⁸ than of progression and proficience, and tend rather to augment¹⁹ the mass of learning in the multitude of learned men, than to rectify or raise the sciences themselves.

¹⁵ *Setteth it down,* p. 66, l. 25. See *Eccles.* x. 10.

¹⁶ *The mean,* we should now say '*the means.*'

¹⁷ *For that,* because.

¹⁸ *Memory,* i.e. intended to perpetuate the memory of the donors.

¹⁹ *To augment, &c.,* i.e. to increase the number of those who possess such learning as there is, rather than to extend the bounds of learning. It appears that during the reign of Henry VII. and the earlier years, at any rate, of that of Henry VIII., learning was at a very low ebb in the universities; but, according to Hallam, "they revived at the accession of Elizabeth, and continued through her reign to be the seats of a progressive and solid erudition. It was the common practice at Oxford, observed in form down to the sixteenth century, that every candidate for the degree of bachelor of arts, independently of other exercises, should undergo an examination (become absolutely nominal) in the five sciences of grammar, logic, rhetoric, ethics, and geometry: every one for that of master of arts in the additional sciences of physics, metaphysics, Hebrew and some more. These were probably the ancient trivium (viz. grammar, logic, and rhetoric), and quadrivium (arithmetic, geometry, music, and astronomy) enlarged perhaps after the sixteenth century according to the increase of learning, and the apparent necessity of higher qualifications. But it would be, I conceive, a great mistake to imagine that the requisitions for academical degrees were ever much insisted upon. The Universities sent forth abundance of illiterate graduates in every age." Over the various rooms in the Schools' Quadrangle in Oxford are still inscribed the names of the sciences, mentioned above, which were formerly taught there. Casaubon, writing in the 17th century, talks of the great wealth of Oxford, the revenues of whose colleges, he says, maintained "above two thousand students, generally of respectable parentage, and some even of the first nobility." The course of study, prescribed by the Universities, was in those days very simple: but we must remember that students then entered the University much younger than they do now. Bacon himself went to Cambridge, when he was little more than twelve years old. Moreover, the Universities were but just emerging from the darkness of the Middle Ages: and, under the splendid patronage of Elizabeth, they were already embracing many of the reforms which Bacon wished to see introduced.

3. The works or acts of merit towards learning are conversant about three objects ; the places of learning, the books of learning, and the persons of the learned. For as water, whether it be the dew of heaven, or the springs of the earth, doth scatter and leese²⁰ itself in the ground, except it be collected into some receptacle, where it may by union comfort²¹ and sustain itself ; and for that cause the industry of man hath made and framed springheads, conduits,²² cisterns, and pools, which men have accustomed²³ likewise to beautify and adorn with accomplishments of magnificence and state, as well as of use and necessity : so this excellent liquor of knowledge, whether it descend²⁴ from divine inspiration, or spring from human sense, would soon perish and vanish to oblivion, if it were not preserved in books, traditions, conferences, and places appointed, as universities, colleges, and schools, for the receipt and comforting of the same.

4. The works which concern the seats and places of learning are four ; foundations and buildings,²⁵ endowments with revenues, endowments with franchises²⁶ and privileges, institutions and ordinances for government ; all tending to quietness and privateness of life, and discharge of²⁷ cares and troubles ; much like the stations which Virgil prescribeth for the hiving of bees :

*First for thy bees a quiet station find,
And lodge them under coverl of the wind.*

5. The works touching books are two : first, libraries which are as the shrines where all the relics of the ancient saints, full of true virtue, and that without delusion or imposture,²⁸ are preserved and reposed ;

²⁰ *Leese*, p. 53, n. 34.

²¹ *Comfort*, preserve. Cp. I. 14.

²² *Conduits*, aqueducts.

²³ *Accustomed*, p. 84, n. 41. *Accomplishments*, ornaments.

²⁴ *Whether it descend*, &c., i.e. whether derived from revelation or experience.

²⁵ *Foundations and buildings*, i.e. the erection of buildings.

²⁶ *Franchises*, used as equivalent to 'privileges' : not in the narrow sense of 'a vote.' The privilege of exemption from the ordinary civil tribunals was granted to the University of Oxford by King John. To this day civil suits, to which members of the University are parties, are tried in the University Court.

²⁷ *Discharge of*, freedom from.

²⁸ *Without delusion or imposture*, Bacon refers to the absurd miracles which the Catholic priests pretend to work by means of the relics of departed saints. Books, he says, possess a really miraculous power.

secondly, new editions of authors, with more correct impressions,²⁹ more faithful translations, more profitable glosses, more diligent annotations, and the like.

6. The works pertaining to the persons of learned men (besides the advancement and countenancing of them in general) are two : the reward and designation of readers in sciences already extant and invented ; and the reward and designation³⁰ of writers and inquirers concerning any parts of learning not sufficiently laboured and prosecuted.

7. These are summarily the works and acts, wherein the merits of many excellent princes and other worthy personages have been conversant.³¹ As for any particular commemorations, I call to mind what Cicero said, when he gave general thanks;³² *it is difficult to*

²⁹ *With more correct impressions*, more correctly printed. Erasmus, in 1517, complains of the corruption of the text of all Latin and Greek manuscripts. He says that it scarce ever happened that a passage could be quoted from them without a certainty or suspicion of some erroneous reading. Hallam says that after 1521 there was no press in Cambridge until 1584, and at Oxford until 1586. A certain number of Latin and Greek texts were then printed, but not very many. Large numbers of books must have been imported from abroad. In the year 1606 the great Bodleian Library at Oxford was built. A catalogue of this library was published by James in 1620. It contains about twenty thousand articles. At the same period there appear to have been considerable libraries abroad, at Leyden, Vienna, and Heidelberg. See Hallam's *Literary History*, Vol. iii.

³⁰ In the *Novum Organum*, Bk i., Aph. 90, Bacon complains that the Universities did nothing to advance knowledge. There was no originality in their inquiries. See below, § 14. Fowler says that "the main business of the Universities at this time was the 'disputations.' Their chief interests were either literary or theological, and, so far as the physical sciences were cultivated at all, it was, at least in the English Universities, mainly in the old tracks. As late as the foundation of Sir William Sedley's Professorship of Natural Philosophy in 1621, it was prescribed that the professor should lecture on the works of Aristotle. In the statute regulating the duties of the Chair, there is not a hint of any independent treatment of the subject. The statutes of the Savilian Professor of Astronomy, however, which date from 1619, direct the Professor, on occasion, to refer to the theories or discoveries of recent writers." It is worth remembering that the English Universities are now contemplating the devotion of no small part of their revenues to the endowment of original research.

³¹ *Have been conversant*, have been concerned.

³² *When he gave general thanks*, when he thanked his countrymen generally for recalling him from exile. Cic. *Post red.*, ch. 12.

mention everybody; it would be ungracious to omit any one. Let us rather, according to the scriptures, look unto that part of the race which is before us, than look back to that which is already attained.

8. First therefore, amongst so many great foundations of colleges in Europe, I find strange that they are all dedicated to professions,³³ and none left free to arts and sciences at large. For if men judge that learning should be referred to action, they judge well; but in this they fall into the error described in the ancient fable, in which the other parts of the body did suppose the stomach had been idle, because it neither performed the office of motion, as the limbs do, nor of sense, as the head doth: but yet notwithstanding it is the stomach that digesteth and distributeth to all the rest. So if any man think philosophy and universality³⁴ to be idle studies, he doth not consider that all professions are from thence served and supplied. And this I take to be a great cause that hath hindered the progression of learning, because these fundamental knowledges have been studied but in passage.³⁵ For if you will have a tree bear more fruit than it hath used to do, it is not anything you can do to the boughs, but it is the stirring of the earth and putting new mould about the roots that must work it. Neither is it to be forgotten, that this dedicating of foundations and dotations³⁶ to professory learning hath not only had a malign aspect and influence upon the growth of sciences, but hath also been prejudicial to states and governments. For hence it proceedeth that princes find a solitude in regard of³⁷ able men to serve them in causes of estate, because there is no education collegiate which is free³⁸;

³³ Colleges undertake only to fit men for certain professions—namely, Medicine, Law, and the Church. General knowledge, which cannot be turned to any immediate and practical account, “philosophy and universality,” as he calls it below, is altogether neglected. *At large*, generally, as opposed to the study of one particular science.

³⁴ *Universality*, the study of general principles.

³⁵ *But in passage*, only cursorily.

³⁶ *Dotations*, endowments. *Professory learning*, the special knowledge required for a particular profession. *Malign aspect and influence*, astrological terms. Cp. p. 24, ll. 16, 17.

³⁷ *A solitude in regard of*, a scarcity of.

³⁸ *Free*, in the same sense as we now talk of ‘a *liberal* education.’ Bacon means to say that a man, who has received a liberal education, has acquired a knowledge of history and a grasp of general principles, which enable him to take a wider, and a deeper, and a truer view of any subject, than can be taken by a man who has received merely a technical or special education. Bacon’s

where such as were so disposed mought³⁹ give themselves to histories, modern languages, books of policy and civil discourse,⁴⁰ and other the like enablements unto service of estate.

9. And because⁴¹ founders of colleges do plant, and founders of lectures do water, it followeth well in order to speak of the defect which is in public lectures; namely, in the smallness and meanness of the salary or reward which in most places is assigned unto them; whether they be lectures of arts, or of professions. For it is necessary to the progression of sciences that readers⁴² be of the most able and sufficient men, as those which are ordained⁴³ for generating and propagating of sciences, and not for transitory use. This cannot be, except their condition and endowment be such as may content the ablest man to appropriate his whole labour and continue his whole age⁴⁴ in that function and attendance; and therefore must have a proportion answerable to that mediocrity⁴⁵ or competency of advancement, which may be expected from a profession or the practice of a profession. So as, if you will have sciences flourish, you must observe David's military law, which was, *That those which staid with the carriage should have equal part with⁴⁶ those which were in the action*; else will the carriages be ill attended. So readers in sciences are indeed the

remark is perfectly true: it is well illustrated, for instance, by the example of Burke. No specialist could compete with him as a statesman. His preeminence sprang from this, that his mind was stored with a vast but well-digested experience: consequently he threw a broad light upon every problem, by the application of universal principles of human experience.

³⁹ *Mought*, the old form of *might*.

⁴⁰ *Civil discourse*, political philosophy. The word 'civil' means properly 'relating to man, considered as a member of a political society.' *Estate*, p. 19, n. 89.

⁴¹ *And because*, &c. A college, in which there were none to teach, would be like a tree barren and dead for want of water.

⁴² *Readers*, lecturers, cp. l. 20. The term is still applied to some of the Professors in English Universities. *Sufficient*, competent.

⁴³ *As those which are ordained*, i.e. because they are men whose business it is.

⁴⁴ *Continue his whole age*, &c., spend his whole life in performing and attending to the duties of his office.

⁴⁵ *Answerable to that mediocrity*, &c., i.e. his salary must be equal to what may fairly be considered *an average income* among those who practice the profession.

⁴⁶ *Should have equal part with*, should be equally rewarded: as we now say, "should share equally with."—Sam. i. xxx. 24. David was a Jewish king.

guardians of the stores and provisions of sciences, whence men in active courses⁴⁷ are furnished, and therefore ought to have equal entertainment⁴⁸ with them ; otherwise if the fathers in sciences be of the weakest sort or be ill maintained,

The weakness of the fathers will reappear in the children.

10. Another defect I note, wherein I shall need some alchemist⁴⁹ to help me, who call upon men to sell their books, and to build furnaces ; quitting and forsaking Minerva and the Muses⁵⁰ as barren virgins, and relying upon Vulcan.⁵¹ But certain it is, that unto the deep, fruitful, and operative⁵² study of many sciences, specially natural philosophy and physic,⁵³ books be not only the instrumentals, wherein⁵⁴ also the beneficence of men hath not been altogether wanting. For we see spheres, globes, astrolabes,⁵⁵ maps, and the like, have been provided as appurtenances to astronomy and cosmography, as well as books. We see likewise that some places instituted for physic⁵⁶ have annexed the commodity of gardens for simples of all sorts, and do likewise command the use of dead bodies for anatomices. But these do respect but a few things. In general, there will hardly be any main proficience in the disclosing of nature,⁵⁷ except there be some allowance for expenses about experiments ; whether they be experiments appertaining to Vulcanus or Dædalus,⁵⁸ furnace or

⁴⁷ *Men in active courses*, those who live by the practice of the professions, as distinguished from those who teach them.

⁴⁸ *Entertainment*, remuneration. The quotation which follows is from Virgil, *Georg.* iii. 128.

⁴⁹ *Some alchemist* . . . *who*, cp. p. 26, l. i.

⁵⁰ *Minerva and the Muses*, philosophy and literature. Minerva was the goddess of wisdom. For the Muses, see p. 64, n. 98. *As barren virgins*, i.e. producing no material results—admitting of no practical applications. Similarly, Bacon says elsewhere that “the search for final causes is a barren inquiry : like a virgin consecrated to God, it bears no offspring.”

⁵¹ *Vulcan*, the god of fire, used to denote ‘practical experiments.’

⁵² *Operative*, producing substantial results.

⁵³ *Natural philosophy and physic*, physical science and medicine.

⁵⁴ *Wherein*, i.e. in the supplying of other instruments than books.

⁵⁵ *Astrolabes*, instruments for taking the height of the stars.

⁵⁶ *Physic*, see n. 53. *Commodity*, convenience.

⁵⁷ *In the disclosing of nature*, in bringing to light and unlocking the hidden secrets of nature.

⁵⁸ *Dædalus* is mentioned as a typical mechanic. He was the father of Icarus, and, like him, tried to invent a means of flying. P. 13, n. 54.

engine, or any other kind. And therefore as secretaries and spials⁶⁹ of princes and states bring in bills for intelligence, so you must allow the spials and intelligencers of nature to bring in their bills; or else you shall be ill advertised.⁷⁰

11. And if Alexander made such a liberal assignation to Aristotle of treasure for the allowance of hunters, fowlers, fishers, and the like, that he mought compile an history of nature, much better do they deserve it that travail in arts of nature.⁷¹

12. Another defect which I note, is an intermission or neglect in those which are governors in universities, of consultation, and in princes or superior persons, of visitation: to enter into account and consideration, whether the readings, exercises, and other customs appertaining unto learning, anciently begun and since continued, be well instituted or no; and thereupon to ground an amendment or reformation in that which shall be found inconvenient.⁷² For it is one of your Majesty's own most wise and princely maxims, *That in all usages and precedents, the times be considered wherein they first began; which if they were weak or ignorant, it derogateth from the authority of the usage, and leaveth it for suspect.*⁷³ And therefore inasmuch as most of the usages and orders of the universities were derived from more obscure times, it is the more requisite they be re-examined. In this kind I will give an instance or two, for example sake, of things that are the most obvious and familiar. The one is a matter, which though it be ancient and general, yet I hold to be an error; which is, that scholars in universities come too soon and too unripe⁷⁴ to logic and rhetoric, arts fitter for graduates than children and novices. For these two, rightly taken,⁷⁵ are the gravest of sciences, being the arts of arts; the one for judgement,⁷⁶ the other for ornament. And they be the

⁶⁹ Spials, spies.

⁷⁰ Advertised, p. 96, n. 37.

⁷¹ *That travail in arts of nature.* The Latin translation has "Those who open for themselves a way in the labyrinths of the arts," i.e. those who have attained such a knowledge of the way in which nature works effects, that they can themselves, by applying their knowledge, alter nature. See notes on vii. 5—6.

⁷² Inconvenient, not suited to the present times.

⁷³ Suspect, suspected.

⁷⁴ Too soon and too unripe, see p. 107, n. 19.

⁷⁵ Rightly taken, if rightly understood.

⁷⁶ For judgement, i.e. logic enables us to decide the truth or falsity of propositions and reasonings.

rules and directions how to set forth and dispose matter : and therefore for minds empty and unfraught with matter, and which have not gathered that which Cicero calleth *sylva* and *superllex*, stuff and variety, to begin with those arts (as if one should learn to weigh, or to measure, or to paint the wind)⁶⁷ doth work but this effect, that the wisdom of those arts, which is great and universal, is almost made contemptible, and is degenerate into childish sophistry and ridiculous affectation. And further, the untimely learning of them hath drawn on by consequence the superficial and unprofitable teaching and writing of them, as fitteth indeed to the capacity of children. Another is a lack⁶⁸ I find in the exercises used in the universities, which do make too great a divorce between invention and memory. For their speeches are either premeditate,⁶⁹ in *set forms of words*, where nothing is left to invention⁷⁰; or merely extemporal, where little is left to memory. Whereas in life and action there is least use of either of these, but rather of intermixtures of premeditation and invention, notes and memory. So as the exercise fitteth not the practice, nor the image the life⁷¹ ; and it is ever a true rule in exercises, that they be framed as near as may be to the life of practice ; for otherwise they do pervert the motions and faculties of the mind, and not prepare them. The truth whereof is not obscure, when scholars come to the practices of professions, or other actions of civil⁷² life ; which when they set into,⁷³ this want is soon found by themselves, and sooner by others. But this part, touching the amendment of the institutions and orders of universities, I will conclude with

⁶⁷ To weigh or to measure or to paint the wind, i.e. to weigh and measure refer to logic: to paint, i.e. to adorn, to rhetoric. The speeches and arguments of such young logicians and rhetoricians will have no weight: will be unsubstantial as the wind. What Bacon says is quite true: the speech of a man who has no knowledge is mere words, his arguments mere verbal sophistries.

⁶⁸ A lack, a defect.

⁶⁹ Premeditate, premeditated: prepared beforehand.

⁷⁰ Invention, equivalent to 'readiness,' it denotes the power of speaking when no time for preparation has been given. In real life, says Bacon, a man can generally prepare notes of a speech beforehand, but he cannot trust entirely to these; he must supplement them by 'invention.' Invention is considered below, xiii. 6.

⁷¹ The life, the reality. The life of practice, the actual circumstances of practice.

⁷² Civil life, p. 27, n. 46.

⁷³ When they set into, when they engage in. This want, viz. the defects of the preparation which they have received in the Universities.

the clause of Cæsar's letter to Oppius and Balbus. *I have some ideas as to the way in which this may be brought about, and many ways may be discovered: I ask you to reflect on the matter.*

13. Another defect which I note, ascendeth a little higher⁷⁴ than the precedent. For as the proficience of learning consisteth much in the orders and institutions of universities in the same states and kingdoms, so it would be yet more advanced, if there were more intelligence mutual between the universities of Europe than now there is. We see there be many orders and foundations,⁷⁵ which though they be divided under several sovereignties and territories, yet they take themselves to have a kind of contract, fraternity, and correspondence one with the other, insomuch as they have provincials and generals.⁷⁶ And surely as nature createth brotherhood in families, and arts mechanical contract brotherhoods in communalties,⁷⁷ and the anointment of God superinduceth a brotherhood in kings and bishops, so in like manner there cannot but be a fraternity in learning and illumination, relating to that paternity⁷⁸ which is attributed to God, who is called the Father of illuminations or lights.

⁷⁴ Ascendeth a little higher, is more important.

⁷⁵ Orders and foundations, companies, and societies of men.

⁷⁶ They have provincials and generals. The Latin translation has, "They have presidents, some provincial, others general, whom all obey." Provincial is equivalent to local. The order of Freemasons will serve as an illustration of Bacon's remark. The phrases are probably taken from the organization of the Jesuits.

⁷⁷ In communalties, in societies. Bacon refers to the Trade-guilds, for an account of which see Green's *History of the English People*, Vol. I., p. 209, and p. 222, sq.

⁷⁸ Relating to that paternity, in virtue of that paternity. Men of 'learning and illumination' in all parts of the world should regard one another as brothers, in virtue of their being the sons of a common 'father, viz. God, who is 'the father of light.' For the analogy between light and knowledge, cp. p. 66, § 4. The following passage is an interesting commentary on Bacon's remarks. "Another source of information (in the 16th century) was the correspondence of scholars with each other. It was their constant usage, far more than in modern times, to preserve an epistolary intercourse. If their enmities were often bitter, their contentions almost always violent, many beautiful instances of friendship and sympathy might be adduced on the other side; they deemed themselves a distinct caste, a priesthood of the same altar, not ashamed of poverty, nor disheartened by the world's neglect, but content with the praise of those whom themselves thought worthy of praise, and hoping something more from posterity than they obtained from their own age." Hallam.

14. The⁷⁹ last defect which I will note is, that there hath not been, or very rarely been, any public designation of writers or inquirers concerning such parts of knowledge as may appear not to have been already sufficiently laboured or undertaken; unto which point it is an inducement⁸⁰ to enter into a view and examination what parts of learning have been prosecuted and what omitted. For the opinion of plenty is amongst the causes of want, and the great quantity of books maketh a show rather of superfluity than lack; which surcharge⁸¹ nevertheless is not to be remedied by making no more books, but by making more good books, which, as the serpent of Moses,⁸² mought devour the serpents of the enchanters.

15. The removing of all the defects formerly enumerate,⁸³ except the last, and of the active part also of the last (which is the designation of writers), are *tasks for a king*; towards which the endeavours of a private man may be but as an image in a crossway, that may point at the way, but cannot go it. But the inducing⁸⁴ part of the latter (which is the survey of learning) may be set forward by private travail. Wherefore I will now attempt to make a general and faithful perambulation of learning, with an inquiry what parts thereof lie fresh⁸⁵ and waste, and not improved and converted⁸⁶ by the industry of man; to the end that such a plot⁸⁷ made and recorded to memory, may both minister light to any public designation, and also serve to excite voluntary endeavours. Wherein nevertheless my purpose is at this time to note only omissions and deficiences, and not to make any redargution of errors or incomplete prosecutions. For it is one thing

⁷⁹ Cp. p. 109, n. 30.

⁸⁰ It is an inducement, it will be useful. Cp. the use of 'allurement' on p. 92.

⁸¹ Surcharge, superabundance.

⁸² This story is told in the Jewish Scriptures not of Moses, but of his brother Aaron. "Aaron cast down his rod before Pharaoh, and before his servants, and it became a serpent. Then Pharaoh called the wise men and the sorcerers: now the magicians of Egypt cast down every man his rod, and they became serpents: but Aaron's rod swallowed up their rods."—Ex. vii. 12. With the metaphor of one book devouring another, cp. p. 55, l. 4.

⁸³ Enumerate, enumerated, cp. p. 58, n. 62.

⁸⁴ Inducing, preliminary.

⁸⁵ Fresh, neglected: untouched by man.

⁸⁶ Converted, turned to practical use.

⁸⁷ Plot, description.

to set forth what ground lieth unmanured,⁸³ and another thing to correct ill husbandry in that which is manured.

In the handling and undertaking of which work I am not ignorant what it is that I do now move⁸⁴ and attempt, nor insensible of mine own weakness to sustain my purpose. But my hope is, that if my extreme love to learning carry me too far, I may obtain the excuse of affection ; for that *It is not granted to man to love and to be wise.*⁸⁵ But I know well I can use no other liberty of judgement than I must leave to others ; and I for my part shall be indifferently⁸⁶ glad either to perform myself, or accept from another, that duty of humanity ; *To show the wanderer the right path.* I do foresee likewise that of those things which I shall enter and register as deficiencies and omissions, many will conceive and censure⁸⁷ that some of them are already done and extant ; others to be but curiosities, and things of no great use ; and others to be of too great difficulty, and almost impossibility to be compassed and effected. But for the two first, I refer myself to the particulars. For the last, touching impossibility, I take it those things are to be held possible which may be done by some person, though not by every one ; and which may be done by many, though not by any one ; and which may be done in succession of ages, though not within the hourglass⁸⁸ of one man's life ; and which may be done by public designation, though not by private endeavour. But notwithstanding, if any man will take to himself rather⁸⁹ that of Salomon,⁹⁰ *The slothful man says, there is a lion in the path,* than that of Virgil, *They can, because they think they can,* I shall be content that my labours be esteemed but as the better sort of wishes : for as it asketh some

⁸³ *Unmanured*, uncultivated.

⁸⁴ *Move*, undertake.

⁸⁵ Cp. *Essay x.* "There was never proud man thought so absurdly well of himself, as the lover doth of the person loved : and therefore it is well said, that *it is impossible to love and to be wise.*" Cp. Burke. "To tax and to please, no more than to love and to be wise, is not given to man."

⁸⁶ *Indifferently*, equally.

⁸⁷ *Censure*, think, cp. p. 7, n. 25.

⁸⁸ *Hourglass*, i.e. brief period.

⁸⁹ *Will take to himself rather*, prefers to act on the principle.

⁹⁰ By these two quotations Bacon wishes to distinguish the timid man, who is always imagining difficulties and dangers when there are none, from the man whose confidence in his power to succeed is so great, that it ensures success.

knowledge to demand a question not impertinent,⁹⁶ so it requireth some sense to make a wish not absurd.

I. Pp. 118—126. Bacon begins with a threefold division of learning into history, poetry, and philosophy, corresponding respectively to the memory, the imagination, and the reason. A similar division may be made of revealed knowledge, for prophecy is simply an anticipation of history.

He begins by considering *history*. There exist natural histories, histories of countries, and of churches, but there is no history of letters, and, without this, the world is like a statue of Polyphemus without his single eye. We have a few imperfect records of particular sciences, arts, and practices: but we want a complete history of the origin and antiquities of every science, of the ways in which each has been taught, and of the schools and controversies to which each has given rise. Such a history would be invaluable as a guide to learned men.

With natural history, in the ordinary sense of the term, Bacon has no fault to find: but he complains that there is no trustworthy record of *extraordinary* natural phenomena, nor of extraordinary results which have been produced by experiments. Any marvel which is recorded is believed, partly because people are too idle to examine the evidence for it: partly because such marvels supply rhetoricians with useful ornaments of speech. If such a record existed, it would serve to define the limits within which our general propositions are true, and it would increase our power over nature, which can only be conquered by being imitated. Even the phenomena of witchcraft, divination, and the like should find a place in such a record because, though for the most part based on superstition, they may still throw some light on the working of nature.

Bacon complains especially that there is no history of the arts. As the sophists of old despised the simple illustrations of Socrates, so men have despised mean and simple matters: forgetting that the simplest experiments may disclose the most important truths. It is from that ‘varying of the circumstances,’ which experiment renders possible, that the most fruitful results may be expected to follow.

I. I THE parts of human learning have reference to the three parts of man’s understanding, which is the seat of learning: history to his memory, poesy to his imagination, and philosophy to his reason. Divine learning receiveth⁹⁷ the same distribution; for the spirit⁹⁸ of man is the same, though the revelation of oracle and sense be diverse. So as theology consisteth also of history of the

⁹⁶ Not impertinent, which is to the point. This is the original signification of the word: we use it now in the sense of ‘rude.’

⁹⁷ Receiveth, admits of.

⁹⁸ Spirit, p. 22, n. 12. Oracle and sense, revelation and experience.

church ; of parables, which is divine poesy ; and of holy doctrine or precept. For as for that part which seemeth supernumerary,⁹⁹ which is prophecy, it is but divine history ; which hath that prerogative¹ over human, as² the narration may be before the fact as well as after.

2. History is natural, civil, ecclesiastical, and literary ; whereof the three first I allow as extant, the fourth I note as deficient. *History.* For no man hath propounded to himself the general state *of letters.* of learning to be described and represented from age to age, as many have done the works of nature, and the state civil³ and ecclesiastical ; without which the history of the world seemeth to me to be as the statua⁴ of Polyphemus with his eye out ; that part being wanting which doth most show the spirit and life⁵ of the person. And yet I am not ignorant that in divers particular sciences, as of the juris-consults,⁶ the mathematicians, the rhetoricians, the philosophers, there are set down some small memorials of the schools, authors, and books ; and so likewise some barren relations touching the invention of arts or usages. But a just story⁷ of learning, containing the antiquities and originals of knowledges and their sects, their inventions, their traditions,⁸ their diverse administrations and managings, their flourishings, their oppositions,⁹ decays, depressions, oblivions, removes,¹⁰ with the causes and occasions of them, and all other events concerning learning, throughout the ages of the world, I may truly affirm to be wanting. The use and end of which work I do not so much design for curiosity or satisfaction of those that are the lovers of learning, but chiefly for a

⁹⁹ *Supernumerary*, i.e. not included in the above division.

¹ *Prerogative*, superiority. See p. 84, n. 44.

² As, that : it is correlative to 'that' in l. 3, 'which hath such a superiority over human, that,' &c.

³ *Civil*, p. 111, n. 40.

⁴ *Statua*, see p. 101, n. 75. *Polyphemus*, a one-eyed giant.

⁵ *Spirit and life*, mind and character.

⁶ *Jurisconsults*, lawyers.

⁷ *A just story*, a perfect history.

⁸ *Their traditions*, their mode of teaching, cp. p. 9, n. 37. *Their diverse administrations and managings*, their plan and order of study and practice. Cp. 'use and administration,' p. 120, l. 2.

⁹ *Their oppositions*, i.e. their controversies.

¹⁰ *Removes*, viz. from place to place, or from country to country. The same science is cultivated in different places at different times. In the *De Aug.*, Bacon says, "sciences migrate as well as peoples."

more serious and grave purpose, which is this in few words, that it will make learned men wise in the use and administration of learning. For it is not Saint Augustine's nor Saint Ambrose' works that will make so wise a divine,¹¹ as ecclesiastical history, throughly read and observed; and the same reason is of learning.¹²

3. History¹³ of nature is of three sorts: of nature in course¹⁴; of nature erring or varying¹⁵; and of nature altered or wrought¹⁶; that is, history of creatures, history of marvels, and history of arts.¹⁷ The first of these no doubt is extant,¹⁸ and that in good perfection: the two

¹¹ *A divine*, a theologian. Augustine and Ambrose are two 'fathers.' See p. 72, n. 42.

¹² *And the same reason is of learning*, the same is true of learning. A history of letters, in the comprehensive sense in which Bacon understands it, would enable us to profit by the experience of former ages, it would determine the course of future speculation, and would acquaint us with the conditions of time, place, and circumstances, favourable to the advancement of learning in all its branches.

Hallam says that "the history of literature belongs to modern and chiefly to almost recent times. In the sixteenth century Conrad Gesner appears to have framed a plan of a universal literary history. He published an alphabetical catalogue of authors and their writings: and a digested and minute index to all departments of knowledge, in twenty-one books, each divided into titles, with short references to the texts of works on every head in his comprehensive classification. His works supplied materials which might have been thrown into historical form. Possevin, an Italian Jesuit, also published an account of selected books in 1593, giving under each chapter a nearly chronological catalogue of authors, and sometimes a short account of their works. Lord Bacon might justly deny, notwithstanding these defective works of the preceding century, that any real history of letters had been written." We should naturally expect that such 'small memorials,' as Bacon alludes to, p. 119, ll. 13—18, would exist, inasmuch as the subjects there mentioned were all taught in the schools.

¹³ With this section, cp. p. 50, § 10.

¹⁴ *Nature in course*, i.e. the ordinary course of nature in all its manifestations.

¹⁵ *Of nature erring or varying*, i.e. of irregular, extraordinary, or monstrous phenomena.

¹⁶ *Wrought*, i.e. altered by the labour of man.

¹⁷ *Arts, Obs.* that the history of arts is included under natural history. Bacon discards the old opposition between art and nature. "Art," he says, "is man added to nature;" all that art can do is to improve, develop, and utilize the natural course of things. Cp. § 4.

¹⁸ *The first of these no doubt is extant*, Between 1551 and 1587 Conrad Gesner published his History of Animals, of which Cuvier says, that it is the basis of

latter are handled so weakly and unprofitably, as I am moved to note *History of Nature* them as deficient. For I find no sufficient or competent collection of the works of nature which have a digression and deflexion from the ordinary course of generations,¹⁹ productions, and motions; whether they be singularities of place and region,²⁰ or the strange events of time and chance, or the effects of yet unknown proprieties,²¹ or the instances of exception to general kinds. It is true, I find a number of books of fabulous experiments and secrets, and frivolous impostures for pleasure and strangeness²²; but a substantial and severe²³ collection of the heteroclitae²⁴ or irregulars of nature, well examined and described, I find not; specially not with due rejection of fables and popular errors. For as things now are, if an untruth in nature be once on foot,²⁵ what by reason of the neglect of examination, and countenance²⁶ of antiquity, and what by reason of the use of the opinion in similitudes and ornaments of speech, it is never called down.²⁷

all modern zoology. Between 1553 and 1555 Belon published a history of fishes and birds. He appears to have been the first to observe a great typical conformity in nature. In 1554 Rondelet published a history of fishes, and in 1558 Salviani published a work on the same subject, but inferior to that of Rondelet. Between 1570 and 1605 was published the great natural history of Aldrovandus. Between 1551 and 1568 Turner wrote on botany, and Maranta wrote on the medicinal properties of plants. Both in France and Italy, at that time, large public gardens were kept up. In the same century Hernando d' Oviedo and Carati published accounts of the plants of the Indies.

The student will find a full account of these and other kindred works in Hallam's *Literary History*, Vol ii., Pt. ii., ch. viii., § 2. We must also bear in mind the various and important discoveries in physical science, which were being made and recorded at the time.

¹⁹ Generations, here the word includes the production of any thing in nature.

²⁰ Singularities of place and region, i.e. the fact of some animals or plants being found only in certain places and countries.

²¹ Proprieties, properties.

²² For pleasure and strangeness, invented to amuse by their novelty.

²³ Severe, accurate.

²⁴ Heteroclitae, properly a grammatical term, signifying irregularly inflected nouns or verbs

²⁵ Be on foot, be circulated. What by . . . what by, partly . . . partly.

²⁶ Countenance, authority.

²⁷ Called down, contradicted. Similarly Gilbert says that when theologians and philosophers were in want of an illustration of a difficult subject, they always had recourse to the magnet and electricity. E. See below, xxv. 16.

4. The use of this work, honoured with a precedent²⁸ in Aristotle, is nothing less than to give²⁹ contentment to the appetite of curious and vain wits, as the manner of *Mirabilaries*³⁰ is to do; but for two reasons, both of great weight; the one to correct the partiality of axioms³¹ and opinions, which are commonly framed only upon common and familiar examples; the other because from the wonders of nature is the nearest intelligence and passage³² towards the wonders of art, for it is no more but by³³ following, and as it were hounding³⁴ nature in her wanderings, to be able to lead her afterwards to the same place again. Neither am I of opinion, in this history of marvels, that superstitious narrations of sorceries, witchcrafts, dreams, divinations, and the like, where there is an assurance and clear evidence of the fact, be altogether excluded. For it is not yet known in what cases and how far effects attributed to superstition do participate of³⁵ natural causes: and therefore howsoever the practice of such things is to be condemned, yet from the speculation and consideration of them light may be taken, not only for the discerning³⁶ of the offences, but for the further disclosing of nature. Neither ought a man to make scruple of entering into these things for inquisition of

²⁸ Honoured with a precedent, &c., see p. 50, n. 18.

²⁹ Is nothing less than to give, is any thing rather than to give, i.e. is not to give. As we now use the phrase, it would signify is no less a thing than to give, i.e. 'is to give.'

³⁰ *Mirabilaries*, narrators of marvels.

³¹ *Axioms*, general propositions. They are called partial, because, they take account only of the affirmative instances, which support them, to the neglect of the negative ones. See xiv. 9.

³² Is the nearest intelligence, &c., is the most direct way of discovering how to perform the wonders of art.

³³ For it is no more but . . . to be able, i.e. for the object of studying the marvels of nature is simply to acquire the power, &c.

³⁴ *Hounding*, tracking. See p. 120, n. 17. The thought is frequently repeated in Bacon's writings. At the beginning of the *Nov. Org.* he says that "man can do just so much as he has discerned by observation of the order of nature, and no more." Again, he says, "Nature can be conquered only by being obeyed." If we wish to produce an effect, we must first observe the conditions under which it is produced naturally. We can then artificially reproduce those conditions, and so get the effect: for, "the spheres of knowledge and power are coincident."

³⁵ Do participate of, are partly produced by.

³⁶ Discerning of, coming to a proper decision about.

truth as⁸⁷ your Majesty hath showed in your own example ; who with the two clear eyes of⁸⁸ religion and natural philosophy have looked deeply and wisely into these shadows, and yet proved yourself to be of the nature of the sun, which passeth through pollutions and itself remains as pure as before. But this I hold fit, that these narrations, which have mixture with superstition, be sorted⁸⁹ by themselves, and not to be mingled with the narrations which are merely and sincerely⁹⁰ natural. But as for the narrations touching the prodigies and miracles of religions, they are either not true, or not natural ; and therefore impertinent^{*1} for the story of nature.

5. For history of nature wrought⁴² or mechanical, I find some collections made of agriculture, and likewise of manual arts ;

History Mechanical. but commonly with a rejection of experiments familiar and vulgar. For it is esteemed a kind of dishonour unto learning to descend to inquiry or meditation upon matters mechanical, except they be such as may be thought secrets, rarities, and special subtleties ; which humour of vain and supercilious arrogance is justly derided in Plato ; where he brings in Hippias, a vaunting sophist, disputing with Socrates, a true and unfeigned inquisitor of truth ; where the subject being touching beauty, Socrates, after his wandering manner of inductions,⁴³ put first an example of a fair virgin, and then of a fair horse,

⁸⁷ Bacon refers to the king's treatise on Demonology. See n. on Introductory dedication to the King, Bk. I.

⁸⁸ *With the two clear eyes of*, guided by the clear light of.

⁸⁹ *Sorted*, arranged. Obs. the irregular construction, 'be sorted . . . and not to be.'

⁹⁰ *Merely and sincerely*, purely and entirely. The proper meaning of 'mere' is 'pure.' For 'sincere,' see p. 32, n. 94.

^{*1} *Impertinent*, p. 118, n. 96. *Story*, p. 119, n. 7.

⁴² *Wrought*, p. 120, n. 16. Green, in his *History of the English People*, notices the improvement in the mode of cultivation, and the great development of English manufactures, which took place in Elizabeth's reign.

⁴³ *After his wandering manner of inductions*, the induction practised by Socrates was an attempt to fix the meaning of a term by examining a number of its applications. He 'wandered' from one instance to another, as, for instance, from a beautiful woman to a beautiful horse, and from a beautiful horse to a beautiful jar, to see if he could fix upon any one meaning which was common to the word 'beautiful' in all the instances. See p. 61, n. 81. The sophists, a set of public teachers in Athens whom Plato detested, are, in the Platonic dialogues, always represented as the antagonists of Socrates. Feeble or immoral arguments are put into their mouths, which Socrates has the glory

and then of a fair pot well glazed, whereat Hippias was offended, and said, *More than for courtesy's sake, he did think much to dispute⁴⁴ with any that did allege such base and sordid instances.* Whereunto Socrates answereth, *You have reason, and it becomes you well, being a man so trim in your vestiments, &c.,* and so goeth on in an irony. But the truth is, they be not the highest instances that give the securerst information; as may be well expressed in the tale so common of the philosopher,⁴⁵ that while he gazed upwards to the stars fell into the water; for if he had looked down he might have seen the stars in the water, but looking aloft he could not see the water in the stars. So it cometh often to pass, that mean and small things discover⁴⁶ great, better than great can discover the small: and therefore Aristotle noteth well, *That the nature of everything is best seen in his smallest portions.* And for that cause he inquireth the nature of a commonwealth, first in a family, and the simple conjugations⁴⁷ of man and wife, parent and child, master and servant, which are in every cottage. Even so likewise the nature of this great city of the world, and the policy⁴⁸ thereof, must be first sought in mean concordances⁴⁹ and small portions. So we see how that secret of nature, of the turning of iron touched with the loadstone towards the north, was found out in needles of iron, not in bars of iron.

6. But if my judgement be of any weight, the use of history mechanical is of all others the most radical and fundamental towards

of refuting. Plato's view of the character of the sophists has determined the subsequent meaning of the word.

⁴⁴ *More than for courtesy's sake he did think much to dispute,* if it were not that he wished to be polite, he would scorn to dispute.

⁴⁵ *The philosopher,* the story is told of Thales, the first Greek philosopher. He lived in the sixth century, B.C.

⁴⁶ *Discover,* bring to light: lead to the discovery of. Cp. the story that Watt was led to the discovery of the power of steam by the observation of water boiling in a kettle: and that the observation of a falling apple suggested the reflections, which led to the discovery of the law of gravitation.

⁴⁷ *Conjugations,* connections. Instead of 'master and servant,' Aristotle said 'master and slave.' He considered slavery to be a natural institution. Aristotle pursued the right method; it is now agreed that the family is the unit of society. See Maine's *Ancient Law.*

⁴⁸ *The policy,* the way in which it is governed: i.e. the laws of nature.

⁴⁹ *Concordances,* agreements.

natural philosophy⁵⁰; such natural philosophy as shall not vanish in the fume of subtile, sublime, or delectable⁵¹ speculation, but such as shall be operative to the endowment and benefit of man's life. For it will not only minister and suggest for the present many ingenious practices in all trades, by a connexion and transferring of the observations of one art to the use of another, when the experiences of several mysteries shall fall under the consideration of one man's mind; but further, it will give a more true and real illumination concerning causes and axioms⁵² than is hitherto attained. For like as a man's disposition is never well known till he be crossed, nor Proteus⁵³ ever changed shapes till he was straitened and held fast; so the passages⁵⁴ and variations of

⁵⁰ Cp. Oldenburg's letter to Spinoza in 1661. "In our philosophical College we are diligent in making experiments and observations: for we are confident that the forms and qualitics of things can be best explained from mechanical principles, and that all the results of nature are produced, by motion, shape, and texture, and their various combinations. There is no need to have recourse to inexplicable forms, and occult qualities, as to a refuge of ignorance." This Philosophical Society afterwards became the Royal Society. E.

⁵¹ *Delectable*, p. 91, n. 94.

⁵² *Axioms*, p. 122, n. 31.

⁵³ *Proteus*, a sea God, who was constantly changing his shape. If any one attempted to catch him, he would even turn himself into air, or fire, or water.

⁵⁴ *Passages*, processes. The substance of these lines is often repeated by Bacon. Experiment is a fruitful source of discovery, because it forces phenomena to reveal themselves under conditions which are not spontaneously presented by nature. See Mill's *Logic*, Bk. iii., ch. 7. In the *De Aug.* Bacon adds, "that under Natural History are to be included not only the mechanical arts, but also the practical part of the liberal sciences, and also certain pursuits which have not yet grown into arts." By these last he means, Ellis says, hunting, fishing, &c.

The student should observe that Bacon regards Natural History as the only possible foundation of knowledge. Before we can discover the laws of phenomena, we must have a correct enumeration and description of phenomena. On this subject see especially the first four chapters of his *Description of the Intellectual World*, Ellis and Spedding's Edn., Vol. v., p. 503. 'Now the noblest end of Natural History is this: to be the stuff and matter of true and lawful induction; and to draw from the sense enough to inform the intellect. This is that Natural History which constitutes a solid and eternal basis of true and active philosophy; this it is which gives the first spark to the pure and real light of nature; and whose genius being neglected and not propitiated, has caused us to be visited most unhappily by that host of spectres and kingdom of shadows which we see flitting about among the philosophies afflicting them with utter barrenness in respect of works.' Cp. below, vii. 6, and xiii. 5, n. 43.

nature cannot appear so fully in the liberty of nature as in the trials and vexations of art.

II. Pp. 126—138. Bacon now proceeds to consider *civil history*, i.e. history, in the ordinary sense of the term.

Of histories there are three kinds, (i.) History of antiquities, which may be compared to a defaced and mutilated statue : (ii.) memorials, or rough drafts of history, which are like an unfinished picture : and (iii.) complete histories.

Memorials are of two kinds, (i.) commentaries, or bare records of events : (ii.) registers, or collections of public documents.

The *history of antiquity* is necessarily imperfect. It is useless to lament the deficiencies in it, for the materials for it are imperfect and cannot be recovered. Epitomes or abridgments of history must be peremptorily rejected. They spoil good history.

Complete histories, are of three kinds. Histories of an age, Biographies, and Histories of isolated events. Of these, the first are the most perfect, and are held in the greatest esteem, though the second are more useful, and the third more exactly true. The first kind can only take a large and general view of persons and events, while biographies can give an exact account of a man's whole life, both public and private, and writers of the third kind can record all the details of the events which they are describing, which it is impossible for historians of an age to do. This is an important consideration, for the greatest events often spring from, apparently, the most insignificant circumstances.

The natural limits of historical periods have been fixed by God, viz., ancient history : the histories of Greece and Rome. and modern history. It is to be wished that we had a complete history of the states of Greece and Rome from their rise to their fall, which might serve as an introduction and complement to the records of Greek and Roman historians. But, considering the completeness of the histories which we actually have, this is not a necessity.

As for modern history, the existing histories of England and Scotland are very bad. The histories of the two countries should be rewritten, side by side, down to the time of the Union. At any rate, there should be a good history written of the accession of the Tudor family, and of the eventful period which followed.

Of Biographies there is a great dearth. On the one hand men are soon forgotten : on the other hand, many pretend to despise posthumous fame. This may be because they have ceased to deserve it : but fame is not to be despised.

There is also a lack of histories of particular events. This is a pity, for such histories are comparatively easy to write, and afford valuable materials for larger histories.

Bacon also mentions with approval, and desires an extension of a subordinate kind of history, viz.: diaries, or journals of passing events, which might not be thought worthy of a place in a regular history.

Historical reflections, of which many have been published, are not properly to be considered histories. They belong rather to political philosophy.

Lastly, there is the history of cosmography, which includes the natural history of all countries, with an account of their climates, positions, inhabitants, manners, &c. This is the kind of history in which Bacon notes the fewest defects. Extended travel, he says, is opening all the world to man's investigation, and the extended discoveries which must result may fairly be expected to promote the general advancement of learning.

II. 1. For civil history, it is of three kinds ; not unsightly to be compared with the three kinds of pictures or images. For of pictures or images, we see some are unfinished, some are perfect, and some are defaced. So of histories we may find three kinds, memorials, perfect histories, and antiquities ; for memorials are history unfinished, or the first or rough draughts⁵⁵ of history ; and antiquities are history defaced, or some remnants of history which have casually escaped the shipwreck of time.

2. Memorials, or preparatory history, are of two sorts ; whereof the one may be termed commentaries, and the other registers. Commentaries are they which set down a continuance of the naked⁵⁶ events and actions, without the motives or designs, the counsels, the speeches, the pretexts, the occasions and other passages⁵⁷ of action : for this is the true nature of a commentary (though Cæsar,⁵⁸ in modesty mixed with greatness, did for his pleasure apply the name of a commentary to the best history of the world⁵⁹). Registers⁶⁰ are collections of public acts, as decrees of council, judicial proceedings, declarations and letters of estate,⁶¹ orations and the like, without a perfect continuance or contexture of the thread of the narration.

3. Antiquities, or remnants of history, are, as was said,⁶² *like the planks of a shipwreck* : when industrious persons, by an exact and scrupulous diligence and observation, out of monuments, names, words, proverbs, traditions, private records and evidences, fragments of stories, passages

⁵⁵ *Draughts*, outlines.

⁵⁶ *Naked*, p. 79, n. 96.

⁵⁷ *Passages*, transactions.

⁵⁸ *Cæsar*, cp. p. 90, l. 5, sq.

⁵⁹ *Of the world*, i.e. which exists in the world.

⁶⁰ *Registers*. In the *De Aug.* he includes under registers "titles of persons and events arranged in chronological order."

⁶¹ *Estate*, p. 19, n. 89.

⁶² *As was said*, see above, l. 6.

of books that concern not story,⁶³ and the like, do save and recover somewhat from the deluge of time.

4. In these kinds of unperfect histories I do assign no deficiency, for they are *as it were imperfectly compounded*; and therefore any deficiency in them is but their nature. As for the corruptions and moths of history,⁶⁴ which are epitomes, the use of them deserveth to be banished, as all men of sound judgement have confessed, as those that have fretted⁶⁵ and corroded the sound bodies of many excellent histories, and wrought them into base and unprofitable dregs.

5. History, which may be called just and perfect history, is of three kinds, according to the object which it propoundeth, or pretendeth⁶⁶ to represent: for it either representeth a time, or a person, or an action. The first we call chronicles, the second lives, and the third narrations or relations. Of these, although the first be the most complete and absolute⁶⁷ kind of history, and hath most estimation and glory, yet the second excelleth it in profit and use, and the third in verity and sincerity. For history of times representeth the magnitude of actions, and the public faces⁶⁸ and deportments of persons, and passeth over in silence the smaller passages⁶⁹ and motions of men and matters. But such being the workmanship of God, as he doth hang the greatest weight upon the smallest wires, it comes therefore to pass, that such histories do rather set forth the pomp of business than the true and inward resorts⁷⁰ thereof. But lives, if they be well

⁶³ *Story*, p. 119, n. 7. In the Latin Bacon adds "that the statements contained in such histories must be accepted cautiously: for, there being but few who are interested in the subject, there are but few to detect and restrain the vagaries of the writers."

⁶⁴ *Corruptions and moths of history*, which destroy and eat away histories, as moths do a garment. Cp. xvii. 12. A knowledge of history cannot be attained by reading abridgments of larger histories: abridgments are only of use to refresh the memory of those who are acquainted with the works from which they are compiled.

⁶⁵ *Have fretted*, have eaten away. It should be remembered that when writers betake themselves to writing abridgments, it is a sign of want of originality, and of the decay of a national literature.

⁶⁶ *Pretendeth*, claims, or professes.

⁶⁷ *Absolute*, perfect. This is a meaning which the word bears in Latin.

⁶⁸ *The public faces*, their appearance in public. A man's behaviour in public being often affected, is no clue to his real character.

⁶⁹ *Passages*, p. 127, n. 57.

⁷⁰ *Resorts*, origin. The word occurs again in the 22nd Essay. In the Latin Bacon adds "that if historians do give the motives, still, from a love of dignity,

written,⁷¹ propounding to themselves a person to represent, in whom actions both greater and smaller, public and private, have a commixture,⁷² must of necessity contain a more true, native,⁷³ and lively representation. So again narrations and relations of actions, as the war of Peloponnesus,⁷⁴ the expedition of Cyrus Minor,⁷⁵ the conspiracy of Catiline,⁷⁶ cannot but be more purely and exactly true than histories of times, because they may choose an argument comprehensible within the notice and instructions⁷⁷ of the writer: whereas he that undertaketh the story of a time, specially of any length, cannot but meet with many blanks and spaces which he must be forced to fill up out of his own wit and conjecture.

6. For the history of times (I mean of civil⁷⁸ history), the providence of God hath made the distribution. For it hath pleased God to ordain and illustrate two exemplar⁷⁹ states of the world for arms, learning, moral virtue, policy, and laws; the state of Grecia and the state of Rome; the histories whereof, occupying the middle part of time, have more ancient to them histories which may by one common name be termed the antiquities of the world: and after them, histories which may be likewise called by the name of modern history.

they attribute to human actions more gravity and wisdom than really belong to them, so that one may often get a truer picture of human life from a satire, than from some histories of this kind."

⁷¹ If they be well written, i.e. if they are not mere worthless panegyrics.

⁷² Have a commixture, are intermingled.

⁷³ Native, natural.

⁷⁴ The war of Peloponnesus, waged between the Athenians and Spartans, each side being assisted by its allies. The war began B. C. 431, and lasted for nearly thirty years, resulting in the complete defeat of the Athenians. The history of it has been written by the Athenian Thucydides.

⁷⁵ The expedition of Cyrus Minor, see p. 93, n. 15.

⁷⁶ The conspiracy of Catiline, B. C. 63—2, an attempt of certain dissolute and discontented nobles to overthrow the government in Rome. The history of it has been written by the Roman Sallust.

⁷⁷ The notice and instructions, the knowledge and information. In the Latin Bacon adds a caution that histories of this kind are in one respect least worthy of credit, especially if they are written soon after the events which they record, since the writers are generally influenced by party feeling. Still he says, since all writers are not on one side, a judicious historian may, when the violence of faction has subsided, find the truth between the extremes.

⁷⁸ Civil, distinguished from ecclesiastical.

⁷⁹ Exemplar, used as an adjective: just as we use the word 'model.' Cp. p. 130, l. 6.

7. Now to speak of the deficiencies. As to the heathen antiquities of the world, it is in vain to note them for deficient. Deficient they are no doubt, consisting most of fables and fragments; but the deficiency cannot be holpen⁸⁰; for antiquity is like fame,⁸¹ *she hides her head among the clouds*, her head is muffled front our sight. For the history of the exemplar states it is extant in good perfection. Not but I could wish there were a perfect course of history for Grecia from Theseus⁸² to Philopoemen (what time the affairs of Grecia drowned and extinguished⁸³ in the affairs of Rome), and for Rome from Romulus⁸⁴ to Justinianus,⁸⁵ who may be truly said to be *the last of the Romans*. In which sequences of story⁸⁶ the text of Thucydides and Xenophon⁸⁷ in the one, and the texts of Livius,⁸⁸ Polybius, Sallustius, Cæsar, Appianus, Tacitus, Herodianus in the other, to be kept entire without any diminution at all, and only to be supplied⁸⁹ and continued.

⁸⁰ *Holpen*, the old form of the participle of 'help.' The deficiency has been holpen, partly by the further discovery of ancient monuments and inscriptions: partly by the establishment of philological science which, in many respects, has enabled us to reconstruct the past.

⁸¹ *Fame*, p. 49, n. 8. The quotation is from a description of 'fame' by the Roman poet Virgil. It signifies that it is impossible to trace the origin of rumours.

⁸² *Theseus*, p. 76, n. 71. *Philopæmen*, styled by Plutarch "the last of the Greeks," was an Achæan. At the battle of Mantinea, B. C. 207, he defeated the Lacedæmonians who were allies of Rome. It was in the year 211 B. C. that the Romans first turned their attention seriously to Greece. The country finally became a Roman province, B. C. 146.

What time, at which time. The expression is still common in poetry.

⁸³ *Drowned and extinguished*, used intransitively.

⁸⁴ *Romulus*, p. 76, n. 71.

⁸⁵ *Justinian*, Emperor of Rome, A. D. 527—565.

⁸⁶ *Story*, p. 119, n. 7.

⁸⁷ *Thucydides and Xenophon*, p. 129, n. 74 and 75.

⁸⁸ *Livius*, a writer of the Augustan period. He wrote an account of the city of Rome from its foundation in 142 books, of which only 35 are extant.

Polybius, a Greek, born B. C. 204. The parts of his writings which have survived record portions of Roman history.

Sallustius, p. 129, n. 76. *Cæsar*, p. 127, n. 58. *Appianus*, an Alexandrian, who wrote a history of Rome. The date of his birth is unknown, but he was engaged in writing his book, A.D. 147. *Tacitus*, a Roman historian, A.D. 54—119.

Herodianus, born about A.D. 170, wrote in Greek a history of the Roman empire from about A.D. 180—238.

⁸⁹ *Supplied*, supplemented.

But this is matter of magnificence, rather to be commended than required: and we speak now of parts of learning supplemental and not of supererogation.

8. But for modern histories,⁸⁰ whereof there are some few very worthy, but the greater part beneath mediocrity, leaving the care of foreign stories⁸¹ to foreign states, because I will not be *a meddler in the affairs of other states*, I cannot fail to represent to your Majesty the unworthiness of the History of England in the main continuance thereof,⁸² and the partiality and obliquity⁸³ of that of Scotland in the latest and largest author that I have seen: supposing that it would be honour for your Majesty, and a work very memorable, if this island of Great Brittany, as it is now joined in monarchy for the ages to come, so were joined in one history for the times passed; after the manner of the sacred history, which⁸⁴ draweth down the story of the ten tribes and of the two tribes as twins together. And if it shall seem that the greatness of this work may make it less exactly performed, there is an excellent period of a much smaller compass of time, as to the story of England; that is to say, from the uniting of the Roses to the uniting of the kingdoms; a portion of time wherein, to my understanding,⁸⁵ there hath been the rarest varieties that in like number of successions of any hereditary monarchy hath been known. For⁸⁶ it beginneth with the mixed adaption of a crown by arms and

⁸⁰ §§ 8—9. Hallam has a note on the Historical literature of the 16th century, the substance of which is as follows: In 1564 appeared Guicciardini's History of Italy, and, in 1574, a continuation of it by Adriani. Several French memoirs were published, which are deserving of being read both for their matter and style. Spain had a considerable historian in Mariana. Buchanan's history of Scotland deserves praise for the purity of its style. England produced no good histories. The historical works of the Elizabethan age are mere chronicles and hardly good even as such.

⁸¹ Stories, p. 119, n. 7. Cp. below, l. 14.

⁸² In the main continuance thereof, i.e. as a whole.

⁸³ Obliquity, unfairness. The word means properly 'not straight:' cp. the use of 'bent,' p. 33, l. 1. Bacon refers to Buchanan's history.

⁸⁴ Of the twelve tribes of the Israelites, ten revolted from the confederation and established a separate kingdom. The Bible narrates the fortunes of the two kingdoms of Judah and Israel side by side.

⁸⁵ To my understanding, in my opinion. Hath, obs. the singular verb: this construction is frequent in Bacon's writings.

⁸⁶ Henry VII., besides having the title which his victory gave him, was also the representative of the Lancastrian line: he also reconciled the opposing lines of York and Lancaster by his marriage with Elizabeth. Bacon proposed

title; an entry by battle, an establishment by marriage; and therefore times answerable,⁹⁷ like waters after a tempest, full of working and swelling, though without extremity of storm; but well passed through by the wisdom of the pilot, being one of the most sufficient⁹⁸ kings of all the number. Then followeth the reign of a king, whose actions, howsoever conducted, had much intermixture with the affairs of Europe, balancing and inclining⁹⁹ them variably; in whose time also began that great alteration in the state ecclesiastical, an action which seldom cometh upon the stage. Then¹ the reign of a minor: then an offer of an usurpation (though it was but as a *short-lived fever*). Then the reign of a queen matched with a foreigner: then of a queen that lived solitary and unmarried, and yet her government so masculine, as it had greater impression² and operation upon the states abroad than it any ways received from thence. And now last, this most happy and glorious event, that this island of Brittany, divided from all the world, should be united in itself: and that oracle of rest given to *Æneas*,³ *seek out your ancient mother*, should now be performed and fulfilled upon the nations of England and Scotland, being now reunited in the ancient mother name of Brittany, as a full period⁴ of all instability and peregrinations. So that as it cometh to pass in massive bodies, that they have certain trepidations and waverings before they fix and settle, so it seemeth that by the providence of God this monarchy, before it was to settle in your

to write a history of this period himself, but he only completed an account of the reign of Henry VII.

⁹⁷ *Times answerable*, times corresponding to the beginning, i.e. a period such as might have been expected from the events with which it opened.

⁹⁸ *Sufficient*, able. In the Latin Bacon says of Henry VII. 'that he far surpassed all his predecessors in policy:' and of Henry VIII. he says, 'that he conducted affairs more by impulse than policy.'

⁹⁹ *Inclining*, bending. The course of foreign affairs was determined by the action of Henry.

¹ Bacon refers to the reign of Edward VI., and the attempt to place Lady Jane Grey on the throne: to the marriage of Mary, who was married to (matched with) Philip of Spain, and to the accession of Queen Elizabeth.

² *Impression*, influence. Cp. pp. 84—5.

³ *Æneas*, in the course of his wanderings after the fall of Troy, was told to seek out his ancient mother, i.e. Italy, which had been the cradle of his race. The oracle told him that when he reached Italy his wanderings should cease: it was an 'oracle of rest.'

⁴ *Period*, conclusion. Cp. p. 41, n. 68.

majesty and your generations (in which I hope it is now established for ever), it⁵ had these prelusive changes and varieties.

9. For lives, I do find strange that these times have so little esteemed the virtues of the times, as that the writings of lives should be no more frequent. For although there be not many sovereign princes or absolute commanders, and that states are most collected into monarchies,⁶ yet are there many worthy personages that deserve better than dispersed report⁷ or barren elogies. For herein the invention of one of the late poets⁸ is proper, and doth well enrich the ancient fiction.⁹ For he feigneth that at the end of the thread or web of every man's life there was a little medal containing the person's name, and that Time waited upon the shears, and as soon as the thread was cut, caught the medals, and carried them to the river of Lethe¹⁰; and about the bank there were many birds flying up and down, that would get the medals and carry them in their beak a little while, and then let them fall into the river. Only there were a few swans, which if they got a name would carry it to a temple where it was consecrate.¹¹ And although many men, more mortal in their affections¹² than in

⁵ *It*, p. 23, n. 19. *Prelusive*, preliminary, cp. *prelude*, an introduction.

⁶ *That, redundant, states are most collected into monarchies*, Bacon means to say that when all the little states, which are now parts of great monarchies, were independent, there was a greater number of remarkable men.

⁷ *Dispersed report*, scattered notices. *Elogies*, eulogies.

⁸ *One of the late poets*, Ariosto, an Italian poet of the 16th century.

⁹ *The ancient fiction*, viz. of the three Fates. Clotho (the spinner) spun the thread of a man's life: Lachesis (the allotter) determined the length of it: and Atropos (the implacable), when the time came for a man to die, cut the thread with her shears. Cp. l. 12, 'Time waited on the shears.'

¹⁰ *Lethe*, forgetfulness. Cp.

"They ferry over this Lethean sound,
And wish and struggle, as they pass, to reach
The tempting stream, with one small drop to lose
In sweet forgetfulness all pain and woe."

Milton. *Paradise Lost*. Bk. ii.

¹¹ *Consecrate*, p. 58, n. 62. Bacon adds in the Latin, "In our times there have been but few such swans." The point of the allegory is that of the men of Bacon's age few have found biographers to rescue them from that oblivion, which is the lot of most men.

¹² *Affections*, desires. Their desires are 'mortal,' i.e. do not extend to posthumous fame.

their bodies, do esteem desire of name and memory but as a vanity and ventosity,

Souls that care not for great renown;

which opinion cometh from that root,¹³ *Men do not despise praise until they have ceased to do anything that deserves it*: yet that will not alter Salomon's judgement, *The memory of the just is blessed, but the name of the wicked shall rot*: the one flourisheth, the other either consumeth¹⁴ to present oblivion, or turneth to an ill odour. And therefore in that style or addition,¹⁵ which is and hath been long well received and brought in use, *of happy, of pious, of good memory*, we do acknowledge that which Cicero saith, borrowing it from Demosthenes, that *good fame is the rightful possession of the dead*; which possession I cannot but note that in our times it lieth much waste,¹⁶ and that therein there is a deficiency.

10. For narrations and relations of particular actions, there were also to be wished a greater diligence therein; for there is no great action but hath some good pen which attends it. And because it is an ability not common to write a good history, as may well appear by the small number of them; yet if particularity of actions¹⁷ memorable were but tolerably reported as they pass, the compiling of a complete history of times mought be the better expected, when a writer should arise that were fit for it: for the collection of such relations mought be as a nursery garden,¹⁸ whereby to plant a fair and stately garden, when time should serve.

11. There is yet another partition of history which Cornelius Tacitus¹⁹ maketh, which is not to be forgotten, specially with that

¹³ Which opinion cometh from that root, i.e. may be thus accounted for.

¹⁴ Consumeth, perishes: used intransitively. Cp. p. 130, l. 8.

¹⁵ Addition, title: lit. something added to a man's name. The phrases which follow are often added to the names of those who are remembered with gratitude or admiration. Cp. p. 106, n. 6.

¹⁶ Waste, cp. p. 116, l. 20.

¹⁷ Particularity of actions, individual actions, such as those mentioned on p. 129, ll. 4—6.

¹⁸ A nursery garden, a place where young plants are reared and tended, to be afterwards transplanted into regular gardens. The small history is to the larger one, what the nursery garden is to the regular garden. The one supplies the material for the other.

¹⁹ Tacitus, p. 130, n. 88.

application²⁰ which he accoupleth it withal, annals and journals: appropriating to the former matters of estate,²¹ and to the latter acts and accidents of a meaner nature. For giving but a touch of²² certain magnificent buildings, he addeth, *It suits the dignity of the Roman people to reserve history for great achievements, and to leave such details to the city's daily register.* So as there is a kind of contemplative heraldry, as well as civil.²³ And as nothing doth derogate from the dignity of a state more than confusion of degrees,²⁴ so it doth not a little imbase the authority of an history, to intermingle matters of triumph, or matters of ceremony, or matters of novelty, with matters of state. But the use of a journal hath not only been²⁵ in the history of time, but likewise in the history of persons, and chiefly of actions; for princes in ancient time had, upon point of honour and policy both, journals kept, what passed²⁶ day by day. For we see the chronicle which was read before Ahasuerus,²⁷ when he could not take rest, contained matter of affairs indeed, but such as had passed in his own

²⁰ Application, addition, i.e. the words which Tacitus adds to explain what is the distinction between annals and journals. See ll. 4—5.

²¹ Estate, p. 19, n. 89. Accidents, events. The word means in Latin, "things which happen."

²² Giving but a touch of, merely alluding to.

²³ So as there is, &c., i.e. so that there is a heraldry to distinguish the rank of books, as well as the rank of persons. The rank of individuals is shown by their scutcheons, with which heraldry is concerned: and Bacon says that there are degrees of rank among books, just as there are among individuals.

²⁴ Degrees, i.e. the different classes in the state. Imbase, p. 54, n. 37. The student may contrast with this passage what Macaulay says, *Eng. Hist. Introd.* "It will be my endeavour.....to portray the manners of successive generations, and not to pass by with neglect even the revolutions which have taken place in dress, furniture, repasts, and public amusements. I shall cheerfully bear the reproach of having descended below the dignity of history, if I can succeed in placing before the English of the nineteenth century a true picture of the life of their ancestors."

²⁵ The use of a journal hath not only been, i. e. journals have not only been used to record the history of events, but also to record the daily incidents in the lives of individuals.

²⁶ What passed, i.e. relating what passed.

²⁷ Ahasuerus, "who reigned from India even unto Æthiopia": his history is recorded in one of the books of the Jewish Scriptures. "On that night could not the king sleep, and he commanded to bring the book of records of the chronicles: and they were read before the king." The journal of Ahasuerus is an instance of the class of journals, "of which the use hath been in the history of time." ll. 10—11.

time and very lately before. But the journal of Alexander's house expressed every small particularity,²⁸ even concerning his person and court; and it is yet an use well received²⁹ in enterprises memorable, as expeditions of war, navigations, and the like, to keep diaries of that which passeth continually.

12. I cannot likewise be ignorant of a form of writing which some grave and wise men have used,³⁰ containing a scattered history of those actions which they have thought worthy of memory, with politic discourse³¹ and observation thereupon: not incorporate into the history, but separately, and as the more principal in their intention; which kind of ruminated history³² I think more fit to place amongst books of policy,³³ whereof we shall hereafter speak, than amongst books of history. For it is the true office of history to represent the events themselves together with the counsels, and to leave the observations and conclusions thereupon to the liberty and faculty of every man's judgement. But mixtures are things irregular, whereof no man can define.

²⁸ *Particularity*, incident. In the Latin Bacon says that this journal even recorded the fact of Alexander falling asleep at table. It belongs to the class of journals, "of which the use hath been in the *history of persons*." p. 135. l. 12.

²⁹ *An use well received*, a general custom. This kind of journals belongs to the class of those, "of which the use hath been in the *history of actions*." p. 135, l. 12.

³⁰ Among books of this class, the most remarkable is Machiavelli's *Discourses on Livy*. Hallam remarks that, in the sixteenth century, acquaintance with the histories of Greece and Rome, and the free spirit generated by the Reformation, had produced a love of freedom, which found expression in treatises on political philosophy. In the latter half of the sixteenth century, Hottoman published a collection of passages from early French historians, to show that originally the people had a share in the government. In 1579, Junio Bruto Celta wrote to show the legality of deposing tyrants: and Buchanan published a work of the same import. In 1558, John Poynet advocated the right of deposing kings and killing tyrants. One of the most remarkable treatises of the time was that of Bodin 'On the State': it contained a discussion on the different forms of government, and on the whole internal economy of the state. See Hallam's *Literary History*, Vol. ii., Pt. ii., ch. iv.

³¹ *Politic discourse*, discussions in political philosophy.

³² *Ruminated history*, with reflections on events.

³³ *Books of policy*, cp. p. 111, l. 2. In the Latin he says "A man who professes to write history should not load his book with political discourse. All good histories should be pregnant with political precepts and warnings: but the writer should not act the midwife."

13. So also is there another kind of history manifoldly mixed,³⁴ and that is history of cosmography: being compounded of natural history, in respect of the regions themselves; of history civil,³⁵ in respect of the habitations, regiments,³⁶ and manners of the people; and the mathematics, in respect of the climates and configurations towards the heavens³⁷: which part of learning of all others in this latter time hath³⁸ obtained most proficience. For it may be truly affirmed to the honour of these times, and in a virtuous emulation with antiquity, that this great building of the world had never through-lights made in it,³⁹ till the age of us and our fathers. For although they had knowledge of the antipodes,

*And when on us Morn breathes the living light,
Red Vesper kindles there the tapers of the night,*

yet that mought be by demonstration, and not in fact⁴⁰; and if by travel, it requireth the voyage but of half the globe. But to circle⁴¹ the earth, as the heavenly bodies do, was not done nor enterprised⁴² till these later times: and therefore these times may justly bear in their word,⁴³ not only *further*,⁴⁴ in precedence of the ancient

³⁴ *Manifoldly mixed*, comprising a great variety of subjects.

³⁵ *Civil*, cp. p. 129, n. 78.

³⁶ *Regiments*, forms of government.

³⁷ *Configurations towards the heavens*, the constellations which are visible there.

³⁸ *Hath obtained most proficience*, Between 1550 and 1565, Ramusio, a Venetian, published a collection of travels, which included voyages in Africa, the East Indies, the Indian Archipelago, in Northern Europe and in Asia, besides an account of Japan, and of Magellan's circumnavigation of the globe. Between 1552 and 1554, de Barros and Castanheda published accounts of the Portuguese conquests in the East. Romish missionaries published accounts of China, and India. Hakluyt, in a collection of voyages, published accounts of the discoveries of the English in the Northern Seas, specially under Drake and Magellan. Ortelius, Mercator, and others published maps to which later geographers have been indebted.—Hallam's *Literary History*, Vol. ii., Part ii., ch. viii.

³⁹ *Had never through-lights made in it*, the metaphor is taken from windows in a house.

⁴⁰ *Not in fact*, i.e. not by their having actually journeyed there.

⁴¹ *To circle*, to make a journey round.

⁴² *Enterprised*, attempted.

⁴³ *Bear in their word*, take for their motto.

⁴⁴ *Further*, the motto of Charles V.

no further, and we can imitate the thunderbolt,⁴⁵ in precedence of the ancient we cannot imitate the thunderbolt,

Vain fool, to mock the bolts of Heaven above, &c.,

but likewise *we can imitate the heavens*; in respect of the many memorable voyages after the manner of heaven⁴⁶ about the globe of the earth.

14. And this proficience in navigation and discoveries may plant also an expectation of the further proficience and augmentation of all sciences; because it may seem they are ordained by God to be coevals, that is, to meet in one age. For so the prophet Daniel⁴⁷ speaking of the latter times foretelleth, *Many shall run to and fro and knowledge shall be increased*: as if the openness and through-passage of the world⁴⁸ and the increase of knowledge were appointed to be in the same ages; as we see it is already performed in great part: the learning of these later times not much giving place to⁴⁹ the former two periods or returns of learning, the one of the Grecians, the other of the Romans.

III. Pp. 138—142. Bacon now proceeds to the last of the four kinds of history, viz., *ecclesiastical history*. This may, like secular history, be divided into chronicles, lives, and narrations. But it admits also of another division, into—

(i.) The history of the persecutions, wanderings, and tranquil periods of the church. Of such histories there are plenty: but they are more numerous than good.

(ii.) The history of prophecy, in which the different prophecies and their fulfilments should be arranged side by side. Such a record would strengthen men's belief, and would teach them how to interpret prophecies as yet unfulfilled. But with regard to this last point, it must be borne in mind that the fulfilment of prophecies may be gradual, and extend through ages: for an age is to God no more than a day is to a man. This kind of history is wanting.

(iii.) The history of providence, showing how the actions of God correspond to what is revealed in Scripture as to his character. It would be difficult to complete the work thoroughly: but God has revealed himself by certain manifest signs, which none can mistake. There is no lack of histories of this kind.

⁴⁵ *We can imitate the thunderbolt*, Bacon refers to the invention of gunpowder. The quotation is from *Aen.* vi. 590, where Virgil describes the impious attempt of the Greek king Salmoneus to imitate the thunder and the lightning of Jupiter.

⁴⁶ *Heaven*, the heavenly bodies.

⁴⁷ The prophecies of Daniel form one of the books of the Jewish scriptures.

⁴⁸ *The openness and through-passage of the world*, the fact of the whole world having been discovered and travelled over.

⁴⁹ *Giving place to*, yielding to: being inferior to. *Returns*, revivals.

Bacon concludes by noticing certain appendices to history, of which there is no lack. viz., speeches, letters, which are of special value to the historian, and collections of short sayings. With regard to the last, Bacon regrets the loss of Caesar's apophthegms.

The theological writings of the Elizabethan age were naturally of a controversial character, being occupied with the disputes between the Catholic Church, and the rising Protestant sects. But, of the writings of the sixteenth century, Hooker's *Ecclesiastical Polity* has won a place amongst English classics. In the sphere of Church History proper may be mentioned the *Centuriae Magdeburgenses*, a history of the Church from the time of the first Fathers down to the time of the Reformation: this book was the work of the Lutherans. Between 1588 and 1609, appeared the *Annals of Cardinal Baronius*, bringing the history of the Church down to the end of the twelfth century. This history was carried on by Rainaldus down to 1566. It appears that Bacon's estimate of the merit of ecclesiastical histories is just. They are all disfigured by the prejudices of the writers.

III. I. History ecclesiastical receiveth⁵⁰ the same divisions with history civil: but further in the propriety thereof may be divided⁵¹ into the history of the church, by a general name; history of prophecy; and history of providence. The first describeth the times of the militant church,⁵² whether it be fluctuant, as the ark of Noah,⁵³ or moveable, as the ark in the wilderness,⁵⁴ or at rest, as the ark in

⁵⁰ *Receiveth*, p. 118, n. 97. After this sentence Bacon adds in the Latin—"for there are Lives of the Fathers, Ecclesiastical Chronicles, and records of synods and other ecclesiastical events." Cp. p. 128, ll. 10—14.

⁵¹ *In the propriety thereof may be divided*, its nature is such that it may be divided into. '*Propriety*' is used in the sense of 'peculiarity.' This is the original meaning of the word, viz. "something which is peculiar to a thing": hence the logical term "*property*," with which "*propriety*" is often synonymous in Bacon's writings. Cp. p. 5, l. 5.

⁵² *The militant church*, This epithet is often applied to the Church to express that it has to do battle, not only for its own safety, but also for victory over other religions.

⁵³ *The ark of Noah*, There is a Jewish tradition that God once destroyed the inhabitants of the world by a deluge. Noah and his family alone were preserved for their righteousness, in an ark, in which they floated safely till the waters subsided. The ark of Noah tossed on the waves (fluctuant) is a type of the Church suffering under persecution. Christian theologians are fond of comparing their church to an ark, because, just as none outside the ark of Noah escaped drowning, so none outside the ark of the Church will escape damnation. St. Cyprian, one of the Fathers, writes, "If any one out of (*i.e.* outside of) Noah's ark could escape the deluge, he who is out of the Church may also escape." See above, p. 80, n. 5.

⁵⁴ *The ark in the wilderness*, This ark was a box in which the Jews kept the

the temple⁵⁵: that is, the state of the church in persecution, in remove, and in peace. This part I ought in no sort to note as deficient; only I would the virtue⁵⁶ and sincerity of it were according to⁵⁷ the mass and quantity. But I am not now in hand with⁵⁸ censures, but with omissions.

2. The second, which is history of prophecy,⁵⁹ consisteth of two relatives, the prophecy, and the accomplishment; and therefore the nature of such a work ought to be, that every prophecy of the scripture be sorted with⁶⁰ the event fulfilling the same, throughout the ages of the world; both for the better confirmation of faith, and for the better illumination⁶¹ of the Church touching those parts of prophecies which are yet unfulfilled: allowing nevertheless that latitude which is agreeable and familiar⁶² unto divine prophecies; being of the nature of their author, with whom a thousand years are but as one day; and therefore are not fulfilled punctually at once, but have springing and germinant accomplishment⁶³ throughout many ages; *History Prophetical.* though the height or fulness of them⁶⁴ may refer to some one age. This is a work which I find deficient; but is to be done with wisdom, sobriety, and reverence, or not at all.

stone tables on which their law was written. On the top of it were two figures of angels, between which a bright light occasionally shone, which was a sign of the presence of God. This ark was to them the symbol of their Church and nationality. It accompanied them 'in the wilderness,' i.e. in their journey from their captivity in Egypt to their settlement in Canaan. Thus the 'ark in the wilderness' is a type of the Church in movement, (remove), cp. p. 119, n. 10.

⁵⁵ In the temple, viz., in the Temple which, after acquiring Canaan, the Jews built in Jerusalem. The ark, mentioned in the preceding note, safely established in the temple is a type of the Church enjoying rest.

⁵⁶ The virtue, the excellence.

⁵⁷ According to, in proportion to.

⁵⁸ In hand with, p. 25, n. 36.

⁵⁹ The student must bear in mind that when Bacon talks of prophecies he refers to the books of prophecies, believed to have been inspired directly by God, which form a large part of the Jewish Scriptures.

⁶⁰ Sorted with, p. 123, n. 39.

⁶¹ For the better illumination, &c. i.e. to teach the Church how to interpret those prophecies which are still to be fulfilled.

⁶² Familiar, natural.

⁶³ Springing and germinant accomplishment, the metaphor is taken from the gradual growth of a tree. Just as a tree does not attain to its full development in a day, so there may be some prophecies which are being fulfilled gradually.

⁶⁴ The height or fulness of them, i.e. their complete and perfect fulfilment.

3. The third, which is history of providence, containeth that excellent correspondence which is between God's revealed will and his secret⁶⁵ will: which though it be so obscure, as for the most part it is not legible to the natural man⁶⁶; no, nor many times to those that behold it from the tabernacle; yet at some times it pleaseth God, for our better establishment⁶⁷ and the confuting of those which are as without God in the world,⁶⁸ to write it in such text and capital letters, that, as the prophet saith, *He that runneth by may read it*; that is, mere sensual persons, which hasten by God's judgements, and never bend or fix their cogitations upon them, are nevertheless in their passage and race urged to discern it. Such are the notable events and examples of God's judgements,⁶⁹ chastisements, deliverances, and blessings: and this is a work which hath passed through the labour of many, and therefore I cannot present as omitted.

4. There are also other parts of learning which are appendices to history. For all the exterior proceedings of man consist of words and deeds; whereof history doth properly receive and retain in memory the deeds, and if words, yet but as inducements⁷⁰ and passages to deeds; so are there other books and writings, which are appropriate to the custody and receipt of words only; which likewise⁷¹ are of

⁶⁵ *Secret*, i.e. of which we know nothing, and at which we can only guess from God's actions. Bacon remarks in the Latin, "that this kind of history is seldom written impartially." Of course if an attempt is made to write such a history at all, it cannot but be written partially. If storms, earthquakes, and pestilences are regarded not as the results of natural causes, but as judgements of God, then, of course, every writer will interpret them as judgments not upon himself, but upon his neighbour.

⁶⁶ *The natural man*, i.e. the man who judges merely by the light of reason, without the assistance of the divine revelation, will be less likely to judge God's actions rightly than members of the Church—*those who behold them from the tabernacle*, and who have the light of the Scriptures to assist them. 'The tabernacle' was the tent which served the Jews for a church on their way from Egypt to Canaan: hence, it is used here as equivalent to 'the Church.'

⁶⁷ *For our better establishment*, i.e. to confirm our faith.

⁶⁸ *Which are as without God in the world*, those who live a life of sensuality and sin, (mere sensual persons, l. 9,) as if there were no God who would punish them for it.

⁶⁹ *Judgements*, punishments. Bacon refers to events which have been explained as either divine punishments, or divine blessings. See n. 65.

⁷⁰ *Inducements*, preliminaries. Cp. p. 116, n. 84. *Passages*, introductions. Cp. p. 122, n. 32.

⁷¹ *Likewise*, viz., like history. See p. 127, § 1.

three sorts; orations, letters, and brief speeches or sayings. Orations are pleadings, speeches of counsel,⁷² laudatives, invectives, apologies, reprehensions, orations of formality or ceremony, and the like. Letters are according to all the variety of occasions, advertisements,⁷³ advices, directions, propositions, petitions, commendatory, expostulatory, satisfactory,⁷⁴ of compliment, of pleasure, of discourse, and all other passages of actions.⁷⁵ And such as are written from wise men are of all the words of man, in my judgement, the best; for they are more natural than orations, and public speeches, and more advised⁷⁶ than conferences or present speeches. So again letters of affairs from such as manage them, or are privy to them, are of all others the best instructions for history, and to a diligent reader the best histories in themselves. For apophthegms, it is a great loss⁷⁷ of that book of Cæsar's; for as his history, and those few letters of his which we have, and those apophthegms which were of his own, excel all men's else, so I suppose would his collection of apophthegms have done. For as for those which are collected by others, either I have no taste in such matters, or else their choice hath not been happy. But upon these three kinds of writings I do not insist, because I have no deficiences to propound concerning them.

5. Thus much therefore concerning history, which is that part of learning which answereth to one of the cells,⁷⁸ domiciles, or offices of the mind of man; which is that of the memory.

⁷² *Speeches of counsel*, i.e. speeches in which advice is given. *Laudatives*, p. 64, n. 98.

⁷³ *Advertisements*, information. Cp. p. 113, n. 60.

⁷⁴ *Satisfactory*, expressing apology.

⁷⁵ *Passages of action*, p. 127, n. 57.

⁷⁶ *More advised*, are the result of more thought. *Present speeches*, unprepared speeches at a personal interview.

⁷⁷ *It is a great loss, &c.* Obs. the construction: the meaning is, 'It is a pity that the book is lost.' See p. 91, § 25. "Apophthegms," Bacon says in the Latin, "are like sharp swords which cut through the knots of business. They are always of use to men engaged in business, since occasions for applying them are constantly recurring." Bacon himself published a collection of Apophthegms.

⁷⁸ *Which answereth to one of the cells*, p. 118, § 1. The phraseology denotes the belief that the various faculties of the mind occupied each a separate portion of the brain. It is worth noticing that modern psychologists have attempted to assign different mental operations to different parts of the brain. See Spencer's *Psychology*, Vol. 1, p. 60, sq.

IV. Pp. 143—149. Bacon now proceeds to consider poetry, which is the product of the imagination. He is not concerned here with poetic style, but merely with the subject-matter of poetry, which is *fictitious narrative*. The poet is limited in his choice of words by the necessities of metre, but in range of subjects he is limited only by the extent of his imaginative power. Fictitious narrative exaggerates the proportions of real events, and so ennobles the mind: it elevates the moral character by representing virtue as always rewarded, and vice as always punished: it amuses, by diversifying the monotony of actual events through variety of incident. It represents things not as they are, but as the mind of man would desire them to be. Partly by the predominance which it gives to the imagination over the reason, partly by its natural connection with music, poetry has always been esteemed and powerful among simple people.

There are three kinds of poetry; *epic*, or exaggerated history *dramatic*, which is a visible representation of history: and *figurative*. Figurative poetry is of two kinds: it may either convey a lesson, or veil a mystery. The first is an easy method of teaching, adapted to simple minds: of the second examples may be found in the heathen myths. Bacon, however, adds that the authors of the myths may have been ignorant of the mysteries which later interpreters have discovered in them.

In poetry Bacon notes no deficiencies. It is, he says, a kind of learning which springs up spontaneously and needs not to be fostered.

The student should notice what a very inadequate conception Bacon has formed of poetry, by confining it to narrative. He says expressly in the *De Aug.* that he excludes all odes, epigrams, satires, and elegies. Poetry is not, as Bacon thinks, altogether produced or appreciated by the imagination. It touches every chord in the human heart; it is the expression of a deep feeling on the part of the writer, and awakens a corresponding feeling in the reader. In excluding the poetry of the emotions, or lyrical poetry, Bacon excludes the highest kind of poetry.

IV. i. Poesy is a part of learning in measure of words⁷⁹ for the most part restrained, but in all other points extremely licensed, and doth truly refer to the imagination⁸⁰; which, being not tied to⁸¹ the laws of matter, may at pleasure join that which nature hath severed, and sever that which nature hath joined; and so make unlawful matches⁸² and divorces of things; *Painters and poets, &c.* It is

⁷⁹ *In measure of words*, in metre. Cp. xvi. 5, where a verse is called ‘a measured speech.’ The meaning is expressed concisely in the Latin—very much limited in choice of words, but free and unrestrained as to matter.

⁸⁰ Refer to the imagination, Cp. p. 118, § 1.

⁸¹ *Tied to*, bound by. History, which is the work of reason, must represent things as they are: but the imagination is free to invent.

⁸² *Matches*, unions. Cp. ‘matched,’ p. 132, l. 11. ‘Unlawful,’ i.e. which violate

taken⁸³ in two senses in respect of words or matter. In the first sense it is but a character⁸⁴ of style, and belongeth to arts of speech, and is not pertinent for the present. In the latter⁸⁵ it is (as hath been said) one of the principal portions of learning, and is nothing else but feigned history, which may be styled⁸⁶ as well in prose as in verse.

2. The use of this feigned history hath been to give some shadow of satisfaction to the mind of man in those points wherein the nature of things doth deny it, the world being in proportion⁸⁷ inferior to the soul; by reason whereof there is, agreeable to the spirit of man, a more ample greatness, a more exact goodness, and a more absolute variety,⁸⁸ than can be found in the nature of things. Therefore, because the acts or events of true history have not that magnitude which satisfieth the mind of man, poesy feigneth acts and events greater and more heroical. Because true history propoundeth the successes⁸⁹ and issues of actions not so⁹⁰ agreeable to the merits of virtue and vice, therefore poesy feigns them more just in retribution, and more according to revealed providence.⁹¹ Because true history

the laws of nature, *e.g.* a centaur, which has the head of a man and the body of a horse. ‘Painters and poets,’ Horace says, are ‘allowed a reasonable liberty of invention.’

⁸³ Is taken, is understood. *In respect of*, *i.e.* according as we consider the words or the subject.

⁸⁴ A character, a kind. Bacon is not here concerned with the laws of metrical composition. See xvi. v.

⁸⁵ In the latter, supply ‘sense’: viz. in respect of matter.

⁸⁶ Which may be styled, *i.e.* which, viz. history, may be called feigned whether it be written in prose or verse. Bacon is not here concerned with the form, but only with the matter of poetry.

⁸⁷ In proportion, in degree, or dignity. Bacon means to say that the present system of things does not satisfy our higher aspirations. In the Latin he says, “Poetry proves that the human mind requires for its satisfaction a more striking greatness of events, a more perfect order, and a more pleasing variety than can be found in nature, since the time that man fell.” Ellis quotes appropriately from Byron—

“I am sick of all
That dust has shown me: let me dwell in shadows.”

⁸⁸ A more absolute variety, a greater, or more complete variety. See p. 128, n. 67.

⁸⁹ Successes, results.

⁹⁰ So, *i.e.* so much as the human mind desires.

⁹¹ More according to revealed providence, because the Scriptures tell us that God rewards the good and punishes the bad.

representeth actions and events more ordinary and less interchanged,⁹² therefore poesy endueth them with more rareness, and more unexpected and alternative variations.⁹³ So as it appeareth that poesy serveth and conferreth to magnanimity, morality, and to delectation.⁹⁴ And therefore it was ever thought to have some participation of divineness, because it doth raise and erect the mind, by submitting the shows of things⁹⁵ to the desires of the mind; whereas reason doth buckle and bow the mind unto the nature of things. And we see that by these insinuations and congruities with man's nature and pleasure,⁹⁶ joined also with the agreement and consort⁹⁷ it hath with music, it hath had access⁹⁸ and estimation in rude times and barbarous regions, where other learning stood excluded.

3. The division of poesy which is aptest in the propriety thereof (besides those divisions⁹⁹ which are common unto it with history, as feigned chronicles, feigned lives, and the appendices of history, as feigned epistles, feigned orations, and the rest) is into poesy narrative, representative, and allusive. The narrative is a mere imitation of history, with the excesses before remembered¹; choosing for subject commonly wars and love, rarely state, and sometimes pleasure or mirth. Representative² is as a visible history; and is an image of

⁹² *More ordinary and less interchanged*, with too much regularity, and too little variety to satisfy the mind.

⁹³ *Alternative variations*, a greater number of vicissitudes.

⁹⁴ *So as it appeareth, &c.*, cp. Johnson on Milton. "Poetry is the art of uniting pleasure with truth, by calling imagination to the help of reason. Epic poetry undertakes to teach the most important truths by the most pleasing precepts, and therefore relates some great event in the most affecting manner."

⁹⁵ *The shows of things*, i.e. the imaginary events and persons with which it deals.

⁹⁶ *By these insinuations——and pleasure*, by practising these allurements and by conforming itself to what man's nature requires for its satisfaction.

⁹⁷ *Consort*, connection. Bacon adds in the Latin that the fact of poems being set to music gave them an additional charm, and made them more easily received.

⁹⁸ *It hath had access*, it found acceptance.

⁹⁹ *Besides those divisions, &c.*, p. 128, § 5, and p. 141, § 4.

¹ *Remembered*, mentioned. See p. 144, l. 11 sq.

² *Representative*, dramatic. In the *De. Aug.* Bacon says that the drama is powerful both to instruct and corrupt. He regrets that it is not more used as a means of conveying moral instruction. Men, he says, when collected together in bodies, are much more open to impressions, than when they are alone. On this Ellis remarks—"It is a curious fact that Bacon's remarks on the

actions as if they were present, as history is of actions in nature as they are, (that is) past. Allusive or parabolical is a narration applied only to express some special purpose or conceit.³ Which latter kind of parabolical wisdom⁴ was much more in use in the ancient times, as by the fables of *Æsop*, and the brief sentences of the seven,⁵ and the use of hieroglyphics⁶ may appear. And the cause was, for⁷ that it was then of necessity to express any point of reason which was more sharp or subtile than the vulgar⁸ in that manner, because men in those times wanted both variety of examples and subtilty of conceit.⁹ And as hieroglyphics were before letters, so parables were before arguments: and nevertheless now and at all times they do retain much life and vigour, because reason cannot be so sensible,¹⁰ nor examples so fit.

4. But there remaineth yet another use of poesy parabolical, opposite to that which we last mentioned: for that tendeth to demonstrate and illustrate that which is taught or delivered, and this other to retire¹¹ and obscure it: that is, when¹² the secrets and mysteries of religion, policy, or philosophy, are involved in fables or parables. Of this in

character of the modern drama were probably written, and were certainly first published, in the same year which saw the first collection of Shakespeare's plays: of which, though they had been filling the theatre for the last thirty years, I very much doubt whether Bacon had ever heard." He goes on to show how very little notice Shakespeare's plays at that time attracted.

³ The meaning of this sentence is, that parabolical poetry teaches a moral through the medium of a story. No better instance of such poetry can be had than *Æsop's fables*. *Conceit*, idea.

⁴ *Parabolical wisdom*, i.e. wisdom expressed in parables or fables.

⁵ *The seven*, the seven wise men of Greece, to each of whom some pithy saying or repartee was ascribed. Their names are variously given by different writers.

⁶ *Hieroglyphics*, symbolical writing. See xvi. 3.

⁷ *For*, redundant. *It was of necessity*, it was necessary.

⁸ *Than the vulgar*, i.e. than they could understand.

⁹ *Variety of examples and subtilty of conceit*, men's knowledge at that time was so limited in extent, that they had no experience on which to draw for illustration. They were incapable of understanding anything which did not appeal directly to the senses. *Conceit*, intelligence.

¹⁰ *Sensible*, clear.

¹¹ *To retire*, to veil; literally, to withdraw.

¹² *That is, when*, i.e. by the poetry, of which I am now speaking, I mean that which is employed when, &c.

divine poesy¹³ we see the use is authorised. In heathen poesy we see the exposition of fables doth fall out¹⁴ sometimes with great felicity; as in the fable that the giants being overthrown in their war against the gods, the earth their mother in revenge thereof brought forth Fame:

*Enraged against the Gods Earth brought forth Fame,
Last of the giant brood. Sister she was
To Cæus and Enceladus.*

Expounded that¹⁵ when princes and monarchs have suppressed actual and open rebels, then the malignity of people (which is the mother of rebellion) doth bring forth libels and slanders, and taxations¹⁶ of the states, which is of the same kind with rebellion but more feminine.¹⁷ So in the fable that the rest of the gods having conspired to bind Jupiter, Pallas called Briareus with his hundred hands to his aid: expounded that monarchies need not fear any curbing of their absoluteness by mighty subjects, as long as by wisdom they keep the hearts of the people, who will be sure to come in on their side. So in the fable that Achilles was brought up under Chiron the centaur, who was part a man and part a beast, expounded ingeniously but corruptly¹⁸ by Machiavel, that it belongeth to the education and discipline of princes to know as well how to play the part of the lion in violence, and the fox in guile, as of the man in virtue and justice. Nevertheless, in many the like encounters,¹⁹ I do rather think that the fable was first, and the exposition devised, than that the moral was

¹³ In divine poesy, in the inspired writings.

¹⁴ Doth fall out with great felicity, i.e. is very happy. For 'felicity,' cp. p. 4, n. 10.

¹⁵ Expounded that, which fable is explained to mean that, &c. cp. below l. 15. A similar explanation of these two fables is given in the 15th Essay. See below, vii. 6.

¹⁶ Taxations, p. 89, n. 80.

¹⁷ But more feminine, weaker, cp. Essay 15. "Howsoever, he noteth it right, that seditious tumults and seditious fames differ no more but as brother and sister, masculine and feminine." For the meaning of 'fame,' see p. 49, n. 8.

¹⁸ Corruptly, immorally. This saying is from Machiavelli's *Prince*, ch. 18. As two of the animals are the same, it is possible that Machiavelli was thinking of what was said of Boniface VIII. by the predecessor whom he forced to abdicate—that he came in like a fox, would reign like a lion, and die like a dog. E.

¹⁹ In many the like encounters, i.e. in many similar cases, where the fable can thus happily be interpreted.

first, and thereupon the fable framed. For I find it was an ancient vanity in Chrysippus,²⁰ that troubled himself with great contention²¹ to fasten the assertions of the Stoicks upon the fictions of the ancient poets ; but yet that all the fables and fictions of the poets were but pleasure and not figure,²² I interpose no opinion. Surely²³ of those poets which are now extant, even Homer himself (notwithstanding he was made a kind of scripture by the later schools of the Grecians), yet I should without any difficulty²⁴ pronounce that his fables had no such inwardness in his own meaning.²⁵ But what they might have upon a more original tradition, is not easy to affirm ; for he was not the inventor of many of them.

5. In this third part of learning, which is poesy, I can report no deficiency. For being as a plant that cometh of the lust²⁶ of the earth without a formal seed, it hath sprung up and spread abroad more than any other kind. But to ascribe unto it that which is due,

²⁰ *Chrysippus*, an eminent Stoic. He was born at Soli, in Cilicia, and died B.C. 208.

²¹ *Contention*, effort. *To fasten*, &c. i.e. to prove that the principles of the Stoicks were to be found in the fables of the poets.

²² *Were but pleasure and not figure*, i. e. were invented merely to please, and not to convey instruction by means of allegory. In the Latin, Bacon expresses a more decided preference for the opinion that the myths were, from the beginning, consciously allegorical. This opinion is probably a mistaken one. Max Müller's theory is that in early times men, being unable to form abstract conceptions, naturally described the simplest phenomena in nature in the same concrete terms that they would use to describe personal actions. It is probable that there would be several names for natural objects : the meaning of the words used in the original descriptions would gradually be forgotten, and succeeding ages would interpret what was originally a description of a natural phenomenon, into a myth about a person or persons. Max Müller's view is stated and illustrated in his *Essay on Comparative Mythology*. Another, and perhaps a truer view is, that all nations have passed through a stage of mental development, in which they were occupied with the invention of myths. Cp. Grote's *History of Greece*, Pt. I., ch. 16.

²³ The construction is irregular. The meaning is that 'although the Greeks regarded Homer with the same respect that we pay to the Scriptures, still I should without any difficulty,' &c. There was little or no theology in the religion of the Greeks, which consisted chiefly of fables drawn from the poets. This is true not only of "the later schools of the Grecians." Cp. xxv. 4, n. 52.

²⁴ *Difficulty*, hesitation.

²⁵ *Had no such inwardness in his own meaning*, were not intended by him to convey a mystic meaning.

²⁶ *The lust*, the natural vigour. *Formal*, regular.

for the expressing of affections, passions, corruptions, and customs, we are beholding²⁷ to poets more than to the philosophers' works; and for wit and eloquence, not much less than to orators' harangues. But it is not good to stay too long in the theatre. Let us now pass on to the judicial place or palace²⁸ of the mind, which we are to approach and view with more reverence and attention.

V. Pp. 149—156. Bacon now proceeds to treat of philosophy. Knowledge may be divided, according to the source from which it is derived, into divinity and philosophy. Just as water either descends from heaven or springs out of the earth, so knowledge is either inspired from above, or acquired by the light of the senses.

The subject-matter of philosophy is God, Nature and Man: so that philosophy may be divided into divine, natural, and human. But just as a tree has, besides and before its branches, a massive trunk from which the branches spring, so, before the sciences are specialized, a body of knowledge is constituted, which is the parent stem of the specialized sciences. To this body of knowledge Bacon gives the name of *First Philosophy*. It is to contain all those principles which are prior to the various sciences, and common to all of them.

Bacon will not say that such a science does not exist: but such as it is it wants reforming, being at present an undigested mass of materials borrowed at random from different sciences. It is true that, though logic and the first philosophy, as it is, deal with the same subject-matter, yet they profess to treat it from different points of view—Logic analysing the meaning of terms, and the First Philosophy dealing with the actual phenomena denoted by the terms. But, as a matter of fact, this distinction is not observed. The first philosophy has not made any fruitful investigations about the properties of objects. Bacon concludes by giving instances of principles which deserve to be included in the First Philosophy, and says that a First Philosophy, really deserving of the name, has yet to be constructed.

Bacon frequently insists on the danger of over-specialisation in inquiry. See p. 58, n. 64, and cp. the 79th and following Aphorisms in the *Nov. Org.*

²⁷ *Beholding*, beholden.

²⁸ *Place or palace*, see p. 142, n. 78. The student should notice that the principle, common to older philosophies, of classifying the objects of knowledge according to the mental faculties employed upon them, is an erroneous one. It is true that we divide the mind into different functions, according to certain characteristic differences in the results of mental processes: but we do not, on that account, know anything of the mind which we divide, nor of the functions into which we divide it. Bacon refers history to memory: yet, in the acquisition of historical knowledge, the imagination and the reason are employed, as well as the memory.

where, however, for First Philosophy, Bacon, for some reason, substitutes Natural Philosophy.

The idea of a first philosophy, distinct from and superior to the sciences, is borrowed from Aristotle, in whose writings it appears under the name of Metaphysics, though this name was not given to it by Aristotle himself. The word Metaphysics means simply 'that which comes after the physics.'

The account of the First Philosophy given in *The Advancement* is not very clear. It appears from the *De Augmentis* that it is divided into two parts, the first of which contains such principles as those mentioned in *The Advancement*, p. 154, § 3, while the second part contains the solutions of the questions propounded on p. 153, l. 3, seq. What is common to these two parts is that they both transcend the limits of scientific inquiry, since they deal not with a special class of phenomena, *but with the relations existing between classes of phenomena*. They therefore constitute philosophy proper, as distinguished from science. (Cp. Herbert Spencer's *First Principles*, Part 2, ch. 1.)

There are certain laws which *all* phenomena agree in obeying. It is the business of the philosopher to discover these laws. When found, they will constitute the *first part* of the First Philosophy. The student will notice that the instances of these laws given by Bacon differ very much in value: some of them being really universal, such as the law that the sums of unequal added to equals are unequal, while others are made common to different sciences merely by analogy, such as the precept of a musician to fall from a discord upon a concord. The student must also bear in mind that there is a school of philosophers which holds that instances of the first kind are known by intuition, while instances of the second kind are proved by experience. This distinction however was not present to Bacon's mind. He uses the term *axiom* to mean simply a general proposition, or law, cp. p. 122, n. 31: and all physical laws, according to him, are proved in the same way, viz., by induction from experience.

The *second part* of the First Philosophy will contain an explanation of certain facts which the scientific inquirer takes for granted. The man of science starts with the world as it is: the philosopher inquires how it came to be constituted as it is (p. 153, l. 7, seq.). Darwin's *Descent of Man*, and *Formation of Species*, and La Place's *Evolution of the Planetary System*, will serve as instances of works which would find a place in this second part of the First Philosophy.

On the subject of this First Philosophy generally, Prof. Fowler well remarks, "that it was to deal with the laws of nature and man in a more general manner than it was possible for the more special sciences to do. *It was to give, as it were, a general survey of nature*, and then the more special sciences were to follow out in detail particular departments, never, however, losing sight of the common stock with which they were connected. . . . Of the justice of Bacon's remark, and of its supreme importance there can be no doubt. The results of the labours of specialists require to be gathered together into one science, *and the various sciences themselves to be compared and brought into harmony* if human knowledge is to progress as a whole, and we are to command

a real insight into the ways of nature." With these latter words, cp. especially p. 156, ll. 3—6, where Bacon says that the existence of universal laws of nature proves that nature works after the same fashion everywhere. This being so, no inquirer can afford to dispense with "that light and information which the particulars and instances of one science do yield and present for the framing or correcting of the axioms of another science in their very truth and notion." —*On the Interpretation of Nature*.

The student of philosophy will perceive that *the unity of knowledge*, which Bacon is insisting upon, is most clearly realised by the philosophy of evolution. Herbert Spencer says, "They misconceive the natures of the relations among the sciences who assume that there exist objectively those clear separations which the needs of classification lead us to make subjectively there are only different groups of phenomena broadly contrasted but shading off one into another. . . . Evolution being a universal process, one and continuous throughout all forms of existence, there can be no break——no change from one group of concrete phenomena to another, without a bridge of intermediate phenomena."—*Principles of Psychology*, Part I., ch 7.

V. i. The knowledge of man is as the waters, some descending from above, and some springing from beneath; the one informed by the light of nature,²⁹ the other inspired by divine revelation. The light of nature consisteth in the notions of the mind and the reports of the senses³⁰: for as for knowledge which man receiveth by teaching, it is cumulative and not original; as in a water³¹ that besides his own spring-head is fed with other springs and streams. So then, according to these two differing illuminations or originals,³² knowledge is first of all divided into divinity³³ and philosophy.

2. In philosophy, the contemplations of man do either penetrate unto God, or are circumferred to nature, or are reflected or reverted upon himself. Out of which several inquiries there do arise three knowledges; divine philosophy, natural philosophy, and human philosophy, or humanity. For all things are marked and stamped with this triple character,³⁴ of the power of God, the difference of nature, and the use of man. But because the distributions and partitions of knowledge are not like several lines that meet in one angle, and so

²⁹ *Informed by the light of nature*, i.e. acquired by the use of our natural faculties. Cp. p. 108, n. 24.

³⁰ *The reports of the senses*, see p. 8, n. 32.

³¹ *As in a water*, i.e. as is the case with water.

³² *Illuminations or originals*, sources from which knowledge is obtained.

³³ *Divinity*, i.e. theology, not natural religion. The discussion of theology is reserved until xxv.

³⁴ *Character*, p. 5, n. 19.

touch but in a point ; but are like branches of a tree, that meet in a stem, which hath a dimension and quantity of entireness and continuance,³⁵ before it come to discontinue and break itself into arms and boughs : therefore it is good, before we enter into the former distribution,³⁶ to erect and constitute one universal science, by the name of *first philosophy*, primitive or summary philosophy, as the main and common way,³⁷ before we come where the ways part and divide themselves ; which science whether I should report as deficient or no, I stand doubtful. For I find a certain rhapsody³⁸ of natural theology, and of divers parts of logic, and of that part of natural philosophy which concerneth the principles, and of that other part of natural philosophy which concerneth the soul or spirit ; all these strangely commixed and confused ; but being examined, it seemeth to me rather a depredation of other sciences, advanced and exalted³⁹ unto some height of terms, than anything solid or substantive of itself. Nevertheless I cannot be ignorant of the distinction which is current, that the same things are handled but in several respects.⁴⁰ As for example, that logic⁴¹ considereth of many things as they are in notion, and this

³⁵ *Hath a quantity of entireness and continuance*, which, up to a certain point, is whole and continuous. *To discontinue*, to break its continuity, by branching off into boughs.

³⁶ *The former distribution*, viz. the three knowledges mentioned above.

³⁷ *As the main and common way*, i.e. containing those truths which hold of all phenomena alike, as distinguished from the *special laws* of the various sciences.

³⁸ *Rhapsody*, a confused mixture. The word means properly a number of songs strung together. Aristotle's First Philosophy contains a demonstration of the existence of God ; this belongs properly to '*natural theology*' : it contains also '*divers parts of logic*' ; since the existence and essence of God are demonstrated, *a priori*, in accordance with certain formal distinctions established by Aristotle, while the relations of phenomena are determined in connection with the formal relations between universals and individuals, p. 60, n. 72. It contains also '*that part of natural philosophy which concerneth the principles*' ; for it is an attempt to determine the principles common to all forms of existence : these principles, according to Aristotle, are four in number, viz. form, substance, efficient cause, and end. Aristotle's account '*of the soul or spirit*' is given in a separate treatise.

³⁹ *Advanced and exalted*, &c., described in pretentious language.

⁴⁰ *In several respects*, from different points of view.

⁴¹ Logic defines the conceptions which we frame of things, the *first philosophy* considers the things themselves. There are certain '*extern characters*', i.e. outward properties, which things possess : e.g. some things are greater or

philosophy as they are in nature ; the one in appearance, the other in existence ; but I find this difference better made than pursued. For if they had considered quantity, similitude, diversity, and the rest of those extern characters of things, as philosophers, and in nature,⁴² their inquiries must of force have been of a far other kind than they are. For doth any of them, in handling quantity, speak of the force of union, how and how far it multiplieth virtue⁴³ ? Doth any give the reason, why⁴⁴ some things in nature are so common, and in so great mass, and others so rare, and in so small quantity ? Doth any, in handling similitude and diversity, assign the cause why iron should not move to iron, which is more like, but move to the load-stone, which is less like ? Why in all diversities of things there should be certain participles⁴⁵ in nature, which are almost ambiguous to which kind they should be referred ? But there is a mere⁴⁶ and deep silence touching the nature and operation of those common adjuncts of things, as in

less than others : things resemble or differ from one another, &c. Now both the *first philosophy* and logic are concerned with these extern characters of things, but in different ways. The *first philosophy* should determine why one thing is greater or less than another, or the same with or different from another. Logic should consider what we mean by saying that one thing is greater than another, or the same with or different from another. Aristotle has not observed this distinction. See p. 60, n. 72. Likeness, difference, size, &c., are called extern or outward characters or properties of objects, because they are not intrinsic, but are possessed by them merely with reference to other objects. Large and small, like and unlike, have no meaning except as relative terms. Cp. *adventive*, vii. 3, n. 11.

⁴² In nature, in things themselves, instead of merely considering the meaning of the terms. Cp. l. 15. With this passage cp. xiv. 7, where 'the common adjuncts of essences' are the same as 'the extern characters of things,' of which he talks here ; and where the proper logical treatment of them is determined. *Of force*, i.e. necessarily.

⁴³ Virtue, power. As an instance of 'the force of union,' Bacon in his *Natural History* says that 'much water draweth forth the juice of the body infused : but little water is imbibed by the body : ' or again, 'the greater a body is, the greater is the power required to subdue it.'

⁴⁴ For instance, he says in the *De Augmentis*, there must be a reason why there is more iron than gold, more grass than roses, more bodies with a general elementary form than there are bodies possessing a specific form.

⁴⁵ Certain participles, p. 70, n. 31. As instances of such participles, Bacon gives, besides moss, fish which adhere and do not move, which are intermediate between plants and animals : bats, which are intermediate between birds and quadrupeds : seals, which are intermediate between fish and animals, &c.

⁴⁶ Mere, p. 123, n. 40.

nature⁴⁷ : and only a resuming and repeating of the force and use of them in speech or argument. Therefore, because in a writing of this nature I avoid all subtlety, my meaning touching this original or universal philosophy is thus, in a plain and gross⁴⁸ description by negative: *That it be a receptacle for all such profitable observations and axioms as fall not within the compass of any of the special parts of philosophy or sciences, but are more common and of a higher stage.*⁴⁹

3. Now that there are many of that kind need not be doubted. For example: is not the rule, *If equals be added to unequal, the result will be unequal*, an axiom as well of justice as of the mathematics⁵⁰? and is there not a true coincidence between commutative and distributive justice, and arithmetical and geometrical proportion? Is not that other rule, *Things which are equal to the same are equal to each other*, a rule taken from the mathematics, but so potent in logic as all⁵¹ syllogisms are built upon it? Is not the observation, *All things change, nothing is destroyed*, a contemplation⁵² in philosophy thus, that the

⁴⁷ As in nature, i.e. as they exist in nature. See n. 42.

⁴⁸ Gross, general.

⁴⁹ Of a higher stage, standing on a higher level. Cp. p. 58, n. 64.

⁵⁰ In the *De Aug.* Bacon explains that this axiom holds only of *distributive justice*, which does not require that all men should be treated equally. In every community justice allows the existence of special classes with superior privileges, and requires that the penalties inflicted by the laws shall be proportioned to the position of the offender—i.e. adding equals to unequal, or treating men who are unequal as if they were equal, produces inequality or injustice. But in the matter of *commutative justice*, or compensation for injuries sustained, adding equals to unequal, or dealing out the same measure to all men alike, produces equality, or justice.

The distinction between distributive and commutative justice is taken from Aristotle. The former apportions the privileges and burdens in a community according to geometrical proportion. A's share is to B's share as A's merits are to B's merits. If A encroaches on the property of B, *commutative justice* restores the balance by arithmetical proportion, i.e. by the mere process of addition and subtraction. Without regard to the position of the parties, the law takes from A what he has unjustly acquired and restores it to B: or, in more general terms, compensation is given without respect to persons.

⁵¹ The axiom of the syllogism, as stated by Mill, viz., that whatever has a mark has what it is a mark of, is analogous to the axiom that things which coincide with a third thing coincide with one another. Cp. Fowler's *Deductive Logic*, p. 89.

⁵² A contemplation, a principle.

quantum of nature is eternal? in natural theology⁵³ thus, that it requireth the same omnipotency to make somewhat nothing, which at the first made nothing somewhat? according to the scripture, *I know that, whatsoever God doeth, it shall be for ever; nothing can be put to it, nor any thing taken from it.* Is not the ground,⁵⁴ which Machiavel wisely and largely discourses concerning governments, that the way to establish and preserve them, is to reduce them *to their elements*, a rule in religion and nature, as well as in civil administration? Was not the Persian magic⁵⁵ a reduction or correspondence of the principles and architectures of nature to the rules and policy of government? Is not the precept of a musician, to fall from a discord or harsh accord⁵⁶ upon a concord or sweet accord, alike true in affection? Is⁵⁷ not the trope of music, to avoid or slide from the close or cadence, common with the trope of rhetoric of deceiving expectation? Is⁵⁸ not the delight of the quavering upon a stop in music the same with the playing of light upon the water?

The sea shines beneath the trembling light.

⁵³ In natural theology, natural theology proves the law, by recognizing that it requires an exertion of omnipotence to overthrow it. Natural theology and natural philosophy might be expected to have some principles in common, since they deal with the same subject-matter.

⁵⁴ The ground, p. 106, n. 12. We do not now use the verb '*to discourse*' transitively. Bacon explains the application of the axiom to Politics in the *De Aug.* by saying "that the way to prevent the destruction of a state is to reform it, and to lead it back to its primitive customs."

⁵⁵ The connection between the Persian magic and the art of government was first suggested by the saying of Plato that the Persian princes were instructed by the same persons in magic and in politics. Mirandula quotes from Plato a sentence, which is not to be found in Plato, to the effect that the magic which the Persian princes were taught was the science of governing their own states after the model of the world's commonwealth. E.

⁵⁶ Accord, sound. The passage from discord to harmony is as pleasant in friendship as it is in music. The student will notice that this axiom is extended to affection by an analogical use of the terms *discord* and *harmony*.

⁵⁷ An unexpected conclusion to a harmony pleases, just as an unexpected conclusion to a sentence does. The term '*trope*,' generally signifies '*a figure of speech*,' p. 88, l. 5.

⁵⁸ A shake upon a pause in music pleases in the same way that the quivering of light upon water does. '*A stop*,' or as it is called '*a pause*,' is the prolonging of a note in playing. '*To quaver*,' or as we now say '*to shake*,' is to play two adjacent notes for some time in such rapid succession as to produce a tremulous sound, which is compared to the quivering of light on water.

Are not the organs of the senses of one kind with the organs of reflection, the eye with a glass,⁵⁹ the ear with a cave or strait, determined⁶⁰ and bounded? Neither are these only similitudes, as men of narrow observation may conceive them to be, but the same footsteps⁶¹ of nature, treading or printing upon several subjects or matters. This science therefore (as I understand it) I may justly report as deficient: for I see sometimes the profounder sort of wits, in

First philoso-
phy, or of the
fountains of
use. handling some particular argument, will now and then draw a bucket of water out of this well for their present use: but the spring-head thereof⁶² seemeth to me not to have been visited; being of so excellent use both for the disclosing of nature⁶³ and the abridgement of art.

VI. Pp. 156—159. Having described the First Philosophy which, as being the mother of all the sciences, may be compared to Berecynthia, the mother of the gods, Bacon proceeds to consider natural theology, the first of the three branches into which philosophy was divided (p. 151, § 2). Natural theology proves the existence, and power, and goodness of God from the world which is the work of his hands. But it can give no information on points of doctrine, for the work of an artist demonstrates his power and skill only.

⁵⁹ A glass, i.e. a looking glass. By 'organs of reflection' he means 'things which reflect objects.'

⁶⁰ Determined, used in its literal sense of limited, or bounded.

With reference to this instance Fowler quotes from Prof. Playfair—"The analogy between the eye and the telescope goes much beyond the mere exterior: it extends to the internal structure, and to the principle of action. It was the experiment of the *camera obscura* which led to the discovery of the formation of the images of external objects in the bottom of the eye by the action of the crystalline lens, and the other humours of which the eye is formed." With regard to Bacon's instances generally, Fowler remarks that "Analogies drawn from objects or qualities in many respects dissimilar are at all times one of the most fertile sources of suggestion both for scientific discoveries and practical inventions." Students will find illustrations of this remark in his note on *Nov. Org. 2, 27.* At the same time we must remember that men have often been misled by supposed analogies. The mind is naturally more prone to note resemblances than differences.

⁶¹ The same footsteps, &c. See analysis of the First Philosophy, p. 151.

⁶² The spring-head thercof, &c. No one has visited the fountain head of the First Philosophy to see what is really in it, i.e. no one has made a complete collection of the principles which should constitute it.

⁶³ The disclosing of nature, p. 112, n. 57. For the connection between 'disclosing nature' and 'abridging art,' see p. 122, n. 34.

Even the heathens perceived that the reason, unassisted by revelation, was powerless to construct theology. Natural theology has not been neglected, but its proper limits have not been observed. By confounding religion with philosophy men have spoilt both.

With regard to angels or spirits, we are forbidden to worship good spirits, but we are not forbidden to seek such knowledge about them as we can attain by observation. Similarly, though we are forbidden to commune with or employ evil spirits, still an inquiry into their nature is no more forbidden than an inquiry into the nature of any noxious thing. Bacon cannot complain that this subject has been neglected: his complaint rather is, that it has been treated in too fanciful a manner.

The absurdity of atheism, the impossibility of penetrating to the mysteries of theology, the danger of mixing theology and science, and the possibility of acquiring some knowledge about the angels have been already commented on, pp. 11—14; pp. 73—4, § 16; p. 45, ll. 6—8; p. 122, l. 10, sq.

VI. I. This science being therefore first placed as a common parent like unto Berecynthia, which had so much heavenly issue, *all the inhabitants of heaven, all the dwellers in the upper air;* we may return to the former distribution of the three philosophies, divine, natural, and human. And as concerning divine philosophy or natural theology, it is that knowledge or rudiment of knowledge concerning God, which may be obtained by the contemplation of his creatures⁶⁴; which knowledge may be truly termed divine in respect of the object, and natural in respect of the light.⁶⁵ The bounds of this knowledge are, that it sufficeth to convince atheism, but not to inform religion⁶⁶: and therefore there was never miracle wrought by God to convert an atheist, because the light of nature⁶⁷ might have led him to confess a God: but miracles have been wrought to convert idolaters and the superstitious, because no light of nature extendeth to declare the will and true worship of God. For as all works do show forth the power and skill of the workman, and not his image, so it is of the works of God, which do show the omnipotency and wisdom of the maker, but not his image. And⁶⁸ therefore therein the heathen opinion differeth from the

⁶⁴ *Creatures*, p. 44, n. 82.

⁶⁵ *Light, cp. illumination*, p. 151, n. 32.

⁶⁶ *To inform religion*, this is explained below to mean, ‘to tell us what God’s will is, and what is the proper mode of worship.’

⁶⁷ *The light of nature*, p. 151, n. 29, cp. “God never wrought miracle to convince atheism, because his ordinary works convince it.”—*Essay 16*.

⁶⁸ In the *Timæus* of Plato we find it stated that God created the world like himself. The doctrine that man is the image of the world, or that there is a

sacred truth; for they supposed the world to be the image of God, and man to be an extract or compendious image of the world; but the scriptures⁶⁹ never vouchsafe to attribute to the world that honour, as to be the image of God, but only *the work of his hands*; neither do they speak of any other image of God, but man. Wherefore⁷⁰ by the contemplation of nature to induce and enforce the acknowledgement of God, and to demonstrate his power, providence, and goodness, is an excellent argument, and hath been excellently handled by divers. But on the other side, out of the contemplation of nature, or ground⁷¹ of human knowledges, to induce any verity or persuasion concerning the points of faith, is in my judgement not safe: *Give to faith the things which are faith's.* For the heathen themselves conclude as much in that excellent and divine fable⁷² of the golden chain: *That men and gods were not able to draw Jupiter down to the earth; but contrariwise Jupiter was able to draw them up to heaven.* So as we ought not to attempt to draw down or to submit the mysteries of God to our reason; but contrariwise to raise and advance our reason to the divine truth.⁷³ So as in this part of knowledge, touching divine philosophy, I am so far from noting any deficiency, as I rather note an excess: whereunto I have digressed because of the extreme prejudice which both religion and philosophy hath received and may receive by being commixed together; as that which undoubtedly will make an heretical religion, and an imaginary and fabulous philosophy.

constant analogy between the macrocosm, as it was called, of external nature, and the microcosm of man was revived by Paracelsus in the sixteenth century. See below, x. 2, n. 26.

⁶⁹ The Scriptures describe nature as "the work which God created and made": but of man it is said that "God created man in his own image."

⁷⁰ In the *De Aug.* Bacon says more explicitly, "It may be proved from God's works that he is most powerful, that he controls the world, that he possesses wisdom and foreknowledge, that he is good, that he rewards and punishes, and that he is worthy of worship. from the same source we may, without exceeding the bounds of moderation, attain to some wonderful secrets concerning his attributes, and much more concerning his mode of governing the universe."

⁷¹ *Ground*, principles.

⁷² *Fable of the golden chain*, cp. p. 13, n. 55. The application of the fable is somewhat different in this passage. Bacon means here that we cannot bring God before us, so as to see what he is like.

⁷³ *Advance our reason to the divine truth*, the Latin has, 'to raise our minds to adore the throne of divine truth.'

2. Otherwise it is of the nature of angels and spirits, which is an appendix of theology, both divine and natural,⁷⁴ and is neither inscrutable nor interdicted. For although the scripture saith, *Let no man deceive you in sublime discourse touching the worship of angels, pressing into that he knoweth not, &c.*, yet notwithstanding if you observe well that precept, it may appear thereby that there be two things only forbidden, adoration of them, and opinion fantastical of them, either to extol them further than appertaineth to the degree of a creature,⁷⁵ or to extol a man's knowledge of them further than he hath ground. But the sober and grounded⁷⁶ inquiry, which may arise out of the passages of holy scriptures, or out of the gradations of nature,⁷⁷ is not restrained. So of degenerate and revolted spirits, the conversing with them or the employment of them is prohibited, much more any veneration towards them; but the contemplation or science of their nature, their power, their illusions, either by scripture or reason, is a part of spiritual wisdom. For so the apostle⁷⁸ saith, *We are not ignorant of his stratagems*. And it is no more unlawful to inquire the nature of evil spirits, than to inquire the force of poisons in nature, or the nature of sin and vice in morality. But this part touching angels and spirits I cannot note as deficient, for many have occupied themselves in it; I may rather challenge it, in many of the writers thereof, as fabulous and fantastical.

VII. Pp. 159—181. Bacon now proceeds to consider natural philosophy. Since the laws of nature, like gold in a mine, cannot be discovered except by careful search, and since art can only proceed by imitating nature, we must begin by dividing natural philosophy into two branches, the one speculative, the other operative: the first inquiring into the causes of effects, the second dealing with the modes of producing effects. The first may be called *science*, the second *prudence*, or, to revive a much abused term, *magic*. The division

⁷⁴ Both divine and natural, because both theology and the light of nature contribute to our knowledge about angels. The *De Aug.* adds that this knowledge is the easier to attain because of the affinity which there is between the minds of men and of spirits.

⁷⁵ A creature, a created being. God, who is uncreated, is the only proper object of worship.

⁷⁶ Grounded, resting on evidence: not 'fantastical.'

⁷⁷ Out of the gradations of nature, ascending step by step from material forms to spiritual.

⁷⁸ The apostle, Paul. The remark has reference to Satan.

answers to the common distinction between knowledge and practice. It is well to keep these two branches distinct, though, of course, there is a close connection between the discovery of causes and the production of effects by experiment. See p. 113, n. 61.

The first or speculative branch is divided into physic and metaphysic. Bacon revives the ancient term metaphysic, but gives it a new meaning. So far as is consistent with truth and progress he wishes to keep to old terms. In this he differs from Aristotle, who aimed at bringing discredit on all that had gone before him, and imposing upon men his own terms and doctrines, practising that self-glorification which, according to the Bible, is the characteristic of the Evil One. Aristotle was perhaps inspired by the example of his pupil, and wished to be supreme in the intellectual, as Alexander did in the political world: and many, perhaps, will be inclined to apply the same term, *viz.*, robber, to both of them.

Hitherto metaphysic has been confounded with first philosophy and natural theology, (see analysis of first philosophy, p. 150, and p. 152, n. 38,) from both of which it is, in the Baconian philosophy, distinguished. Bacon will retain thus much of the old meaning of the terms physic and metaphysic, that the first shall deal with nature so far as it is changeable and implies merely the existence of matter and of instruments which can act upon it, while metaphysic shall deal with that part of it which is permanent, and exhibits marks of design. Physic deals with material and efficient causes, *i.e.* with the material out of which, and the agents by which an effect is produced. Metaphysic deals with the formal and final causes, *i.e.* with the essence of things from which their sensible qualities flow, and with the objects for which things were made. Thus physic, as dealing with those causes which are not the same in all instances, will stand half-way between natural history, which is a description of the various phenomena of nature, and metaphysic, which inquires into their permanent causes.

Physic itself is divided into three parts, the first dealing with the theory of the constitution of things: the second dealing with the nature of the elements of which things are composed: and the third part, which is an appendix to natural history, containing an account of substances and their attributes. Physic, Bacon says, has not been neglected, though as to the way in which it has been treated he declines to express an opinion.

Passing to metaphysic and formal causes, Bacon says that it may seem absurd to seek for a knowledge of formal causes, since such knowledge is considered unattainable. But, he says, it would, if attained, be very useful, and we need not despair of attaining to it. Plato, it is true, failed in his attempt to reach it, but that was because he did not rightly conceive the object of his inquiry: for he regarded forms as existing outside of objects. The proper method is to seek for the forms, not of substances, but of the qualities of substances. These forms are few, though the qualities, of which they are the forms, are many in number, just as the letters of the alphabet are few in number, though an infinite number of words can be made out of them. In this branch of metaphysics men have failed, because they have adopted a wrong method.

Yet this is the most valuable part of metaphysic, for, in the first place, it leads us to that pinnacle of knowledge, from which we can contemplate the unity or law that prevails amid the apparent diversity of nature, and, in the second place, it increases our power to the uttermost, enabling us to produce effects without being confined to a particular material or agent.

The inquiry into final causes, which is the second part of metaphysic, has not been neglected, but has been transferred to physic, to the great detriment of the latter: for, having discovered the final causes of things, men have been satisfied with them, instead of going on to discover the physical causes of them, so that the latter are but slightly known. The proof of final causes is a proof of the wisdom and power of God, who employs the processes of nature for the fulfilment of his own ends; it is not therefore to be neglected, but it should be reserved for its proper place. The inferiority of the Aristotelian to the Atomistic physics is a proof of the evils which result from confounding this branch of metaphysic with physic.

VII. I. Leaving therefore divine philosophy or natural theology (not divinity or inspired theology, which we reserve for the last of all as the haven and sabbath⁷⁹ of all man's contemplations) we will now proceed to natural philosophy. If then it be true that Democritus⁸⁰ said, *that the truth of nature lieth hid in certain deep mines and caves*; and if it be true⁸¹ likewise that the alchemists do so much inculcate, that Vulcan is a second nature, and imitateth that dexterously and compendiously which nature worketh by ambages⁸² and length of time; it⁸³ were good to divide natural philosophy into the mine and the furnace, and to make two professions or occupations of natural philosophers, some to be pioneers⁸⁴ and some smiths; some to dig, and some to refine and hammer. And surely I do best allow of⁸⁵ a division

⁷⁹ *The haven and sabbath*, cp. xxiv. By 'the sabbath' is meant '*the resting-place*.' The word properly signifies '*rest*.' It is applied to the day on which God rested from the work of creation. See p. 66, n. 8.

⁸⁰ *Democritus*, p. 53, n. 36.

⁸¹ *If it be true, &c.*, see p. 112, § 10. *Vulcan is a second nature*, i.e. in experiment we can only imitate nature. See p. 120, n. 17

⁸² *By ambages*, in a roundabout way.

⁸³ The relation between theoretical and practical philosophy or inquiry and experiment, is expressed metaphorically by saying that theoretical philosophy must descend into the mines of nature and bring the hidden ore to light, while practical philosophy must work the ore in the furnace, and hammer it on the anvil.

⁸⁴ *Pioneers*, workers in the mine, i.e. men whose business it is to discover the processes by which nature works. See p. 70, n. 33.

⁸⁵ *Allow of*, p. 27, n. 47.

of that kind, though in more familiar and scholastical⁸⁶ terms ; namely, that these be the two parts of natural philosophy, the inquisition of causes, and the production of effects ; speculative, and operative ; natural science, and natural prudence. For as in civil⁸⁷ matters there is a wisdom of discourse, and a wisdom of direction ; so is it in natural. And here I will make a request, that for the latter⁸⁸ (or at least for a part thereof) I may revive and reintegrate the misapplied and abused name of natural magic ; which in the true sense is but natural wisdom, or natural prudence ; taken according to the ancient acceptation,⁸⁹ purged from vanity and superstition. Now although it be true, and I know it well, that there is an intercourse⁹⁰ between causes and effects, so as both these knowledges, speculative and operative, have a great connexion between themselves ; yet because all true and fruitful natural philosophy hath a double scale or ladder, ascendent and descendent, ascending from experiments to the invention of causes, and descending from causes to the invention of new experiments ; therefore I judge it most requisite that these two parts be severally⁹¹ considered and handled.

2. Natural science or theory is divided into physic and metaphysic : wherein I desire it may be conceived that I use the word metaphysic⁹² in a differing sense from that that is received. And in like manner, I doubt not but it will easily appear to men of judgement, that in this and other particulars, wheresoever my conception and notion may differ from the ancient, yet I am studious to keep the ancient terms. For hoping well to deliver myself from mistaking,⁹³ by the order and perspicuous expressing of that I do propound ; I am otherwise zealous

⁸⁶ *Scholastical*, used in the schools, philosophical. Bacon says in the *De Aug.* that the metaphor of the mine and the furnace, which he has just used, is a playful illustration of an important distinction, which he now proceeds to state in philosophical language.

⁸⁷ *Civil*, p. III, n. 40.

⁸⁸ *The latter*, viz. natural prudence. *A part thereof*, viz. that part of it which corresponds to metaphysic, see below, viii., 3.

⁸⁹ *Acceptio*, acceptation, i.e. meaning.

⁹⁰ *There is an intercourse*, &c., see p. 122, n. 34. By the ascendent and descendent processes respectively Bacon means the discovery of laws by induction, and the application of them to practice.

⁹¹ *Severally*, separately.

⁹² *Metaphysic*, see analysis of the first philosophy, p. 150.

⁹³ *From mistaking*, from being misunderstood.

and affectionate⁹⁴ to recede as little from antiquity, either in terms or opinions, as may stand with⁹⁵ truth and the proficience of knowledge. And herein I cannot a little marvel at the philosopher Aristotle, that⁹⁶ did proceed in such a spirit of difference and contradiction towards all antiquity : undertaking not only to fraine new words of science at pleasure, but to confound⁹⁷ and extinguish all ancient wisdom : insomuch as he never nameth or mentioneth an ancient author or opinion, but to confute and reprove ; wherein for glory, and drawing followers and disciples, he took the right course. For certainly there cometh to pass, and hath place in human truth, that which was noted and pronounced in the highest truth : *I am come⁹⁸ in my Father's name, and ye receive me not : if another shall come in his own name, him ye will receive.* But in this divine aphorism (considering to whom it was applied, namely to antichrist,⁹⁹ the highest deceiver) we may discern well that the coming in a man's own name, without regard of antiquity or paternity,¹ is no good sign of truth, although it be joined² with the fortune and success of a *him ye will receive.* But for this excellent person Aristotle,³ I will think of him that he learned that humour of his scholar,⁴ with whom it seemeth he did emulate ; the one to con-

⁹⁴ *Affectionate*, desirous.

⁹⁵ *Stand with*, be consistent with.

⁹⁶ This charge of dogmatism is again brought against Aristotle in viii., 5. It is also repeated in the *Nov. Org.*, Bk. i., 67. The charge is unfair. Aristotle frequently propounds alternative solutions of a subject, without deciding in favour of any one of them. In reading Bacon's remarks upon Aristotle the student must always bear in mind that Bacon did not study Aristotle's work in the original Greek, and also that a violent reaction against the philosophy of Aristotle is a main feature of the philosophy of the sixteenth century.

⁹⁷ *To confound*, to destroy.

⁹⁸ *I am come*, &c., one of the sayings of Jesus. 'To come in my father's name' means 'to derive my authority from my father:' while 'To come in one's own name' means 'to represent one's self as possessed of absolute and independent authority.'

⁹⁹ *Antichrist*, p. 50, n. 14.

¹ *Without regard of antiquity or paternity*, without considering whether his doctrines are sanctioned by antiquity, or by the authority of any.

² *Though it be joined*, &c., i.e. Though it meet with the success which generally attends those who 'come in their own name.'

³ *For this excellent person Aristotle*, In the *De Aug.* Bacon calls him 'a man truly great, and remarkable for the acuteness of his mind.'

⁴ *His scholar*, Alexander the Great. Cp. p. 89, l. 24. *The one to conquer*, i.e. the one striving to conquer.

quer all opinions, as the other to conquer all nations. Wherein⁵ nevertheless, it may be, he may at some men's hands, that are of a bitter disposition, get a like title as his scholar did :

*A fortunate robber of territory,
Who was a bad example to the world, &c.*

So,

A fortunate robber of learning.

But to me on the other side that do desire as much as lieth in my pen to ground a sociable intercourse between antiquity and proficience, it seemeth best to keep way with⁶ antiquity *so far as I can without violating higher obligations*; and therefore to retain the ancient terms, though I sometimes alter the uses and definitions, according to the moderate proceeding in civil government; where although there be some alteration, yet that holdeth which Tacitus⁷ wisely noteth, *the names of the magistracies are not changed.*

3. To return therefore to the use and acceptio⁸n of the term metaphysic, as I do now understand the word; it appeareth by that which hath been already said that I intend *first philosophy*, summary philosophy and metaphysic, which heretofore have been confounded as one, to be two distinct things. For the one I have made as a parent⁹ or common ancestor to all knowledge; and the other I have now brought in as a branch or descendant of natural science. It appeareth likewise that I have assigned to summary philosophy the common principles¹⁰ and axioms which are promiscuous and indifferent to several sciences; I have assigned unto it¹¹ likewise the inquiry touching the operation of the relative and adventive characters of essences, as quantity, similitude, diversity, possibility, and the rest :

⁵ *Wherein*, i.e. by reason of this desire for preëminence. The lines which follow are misquoted from the Latin poet Lucan.

⁶ *To keep way with*, to follow.

⁷ *Tacitus*, p. 130, n. 88. In describing the establishment of the Imperial system by Augustus, Tacitus says that he retained the names of the old republican offices.

⁸ *Acceptio*, p. 162, n. 89.

⁹ *A parent*, p. 157, l. 1.

¹⁰ *The common principles*, p. 154, § 3.

¹¹ *I have assigned unto it*, &c., p. 152, n. 41. *Adventive*, equivalent to *extern*, p. 152, n. 41. A fuller list of such properties is given in xiv., 7.

For a similar use of the word *adventive* as opposed to *original*, see xi., 1. For the meaning of *essences*, see xiv., 7.

with this distinction and provision; that they be handled as they have efficacy in nature, and not logically. It appeareth likewise that natural theology,¹² which heretofore hath been handled confusedly with metaphysic, I have inclosed and bounded by itself. It is therefore now a question what is left remaining for metaphysic; wherein I may without prejudice preserve thus much of the conceit of antiquity, that physic should contemplate that which is inherent in matter,¹³ and therefore transitory; and metaphysic that which is abstracted and fixed. And again, that physic¹⁴ should handle that which supposeth in nature only a being and moving; and metaphysic should handle that which supposeth further in nature a reason, understanding, and platform. But the difference, perspicuously expressed, is most familiar and sensible.¹⁵ For as we divided natural philosophy in general into the inquiry of causes, and productions of effects: so that part which concerneth the inquiry of causes we do subdivide according to the received and sound division of causes.¹⁶ The one part, which is

¹² *Natural Theology*, see p. 152, n. 38.

¹³ *Inherent in matter*, material. *Transitory*, because the instrument by which an effect is produced is not the same in all cases. *Abstracted and fixed*, because the 'essence' and 'intention' are independent of the material, and do not vary with it: e.g. in whatever material heat may be generated, the 'essence' or 'form' of heat is always the same. See below, n. 16.

¹⁴ The production of changes in matter by means of instruments merely implies the existence of things which can be acted upon and of things which can act upon them, whereas the existence of constant 'forms,' and the fact that all things serve a purpose show that the world was designed by an intelligent Being. With '*being and moving*' the student may compare *Nov. Org.*, i., 66, where the material causes, or elements of which things are composed are talked of as '*at rest*', while the efficient causes or instruments are talked of as '*in motion*'. *Platform*, p. 65, n. 1.

¹⁵ *Sensible*, easily perceived. *As we divided, &c.*, p. 160, ll. 2—4.

¹⁶ *The received and sound division of causes*, This fourfold division of causes is borrowed from Aristotle, see p. 152, n. 38. Final, efficient, and material causes present no difficulty. The final cause is the object for which a thing is made: see § 7. The material cause is the matter out of which it is made: and the efficient cause is the instrument by which it is made. For instance, if coal is produced by the action of pressure upon vegetation, then vegetation is the material cause, and pressure the efficient cause. To the word "form," however, Bacon attaches a special meaning, which must be carefully studied; for the doctrine of forms, and the method of discovering them, are the central points of the Baconian system. The qualities which substances possess may be divided into two classes, primary and derived: qualities of the second class are derived from, or caused by qualities of the

physic, inquireth and handleth the material and efficient causes ; and

first class. It is amongst the qualities or, as Bacon calls them, the "simple natures" of the first class that we must look for "the form" of each of the qualities of the second class. Now, Bacon describes "form" differently in different places. Sometimes he speaks of it as if it meant "essence," and sometimes as if it meant "law." But these two meanings of "essence" and "law" are really identical, and are equivalent to "cause :" for the essence of a thing is that quality in it which determines it to be what it is, or, in other words, the *cause* of its attributes. But by the cause of a thing we mean the sum of the conditions necessary to its existence: and by the *law* of an effect we mean simply the conditions necessary to its existence or production. For the word "form," then, we may substitute the word "cause."

Why, then, does Bacon attach so much importance to the study of forms? Because the object of all science is to increase men's power over nature. Now, if we know the form or cause of any quality or "simple nature," we can produce that quality at will : whereas the knowledge of the material and efficient causes of an effect enables us to produce the effect only under certain circumstances.

The reasons for seeking the forms of *qualities* rather than of substances are given in § 5, and in viii., 3. The business of science, then, is to resolve a substance into its qualities, just as we may resolve a word into the letters of which it is composed, and then to assign the form of each quality. When this has been done, inasmuch as the spheres of science and power are coincident, we can produce any substance by superinducing its qualities upon any material. In all this there are two assumptions which the student must bear carefully in mind—(i.) that the qualities which are forms of other qualities are few in number (see § 5,) and can be exhausted; (ii.) that each quality has one, and only one form.

The *method* by which the form of a quality is to be discovered is as follows. Suppose that we wish to discover the quality which is the form of heat, we must begin by collecting all the instances of the phenomenon of heat, and must then eliminate all qualities which are found present in instances where heat is absent—all qualities which are absent in instances where heat is present—and all qualities which increase where heat decreases, or decrease where heat increases. After this process of elimination has been performed, there will remain one quality which is always present and absent where heat is present and absent, and which always increases and decreases proportionately where heat increases and decreases, and this one quality will be the form. See n. on xiii., 5.

The student must notice that the method of Bacon has not been the method of modern science. The inductive methods, as formulated by later logicians, offer a shorter route to the discovery of causes ; it is possible by means of them to discover the cause of a phenomenon without examining *all* the instances of it ; and the tedious process of elimination has been supplanted by the shorter method of first framing hypotheses as to the causes of things, and

the other, which is metaphysic, handleth the formal and final causes.

then verifying them. We need not wonder at the imperfections of Bacon's method. Scientific method cannot be formulated until a large body of science has been constituted. As Bacon himself says, "The art of discovery advances with discoveries": and, in his days, science was, comparatively speaking, in its infancy. Bacon's neglect of hypotheses springs from the fact that his whole philosophy was a protest against hasty generalization. See xiii., 3 and xiv., 9. A verified hypothesis, however, fulfils all the conditions of a legitimate induction. See Mill's *Logic*, Bk. 3, ch. 14.

We must also consider certain objections which are brought against the method itself. Firstly, Fowler says that some forms must be ultimate: but, as he goes on to say, Bacon would allow this, and would say that the fact of a form being ultimate would be shown by the impossibility of discovering a form of it by the application of his method. Secondly, Fowler says that, when the process of elimination has been performed, it is impossible to say which of the two remaining qualities is the cause, and which the effect. This, however, is a difficulty which must always beset us, and can never be settled until we have observed one to be followed by the other, or have produced one by means of the other. From Bacon's point of view the question would be easily settled, for he held that it is always possible to produce the effect by means of the form. He would say therefore that the question, which of the two qualities is cause and which effect, could be settled by direct experiment. The next difficulty which Fowler raises, viz., that the two qualities, which remain after the process of elimination, may not be connected as cause and effect, but may be ultimate facts such as inertia and gravity, would be settled in the same way. The impossibility of producing either by means of the other would suggest that they were ultimate facts. The most important objection is that urged by Mill, and also by Fowler, namely, that the assumption which underlies the whole method is false, since the same effect is produced by many causes. If this objection be well founded, then Bacon's method does not give certain conclusions, for a quality, which is absent in one of the cases where another quality is present, may still be *one of the causes* of that quality, though it is not the cause in that particular case. But it appears to me that the objection is not well-founded. Complex effects, e.g. substances, are, no doubt, produced under a great variety of circumstances: but Bacon aims at discovering the causes, not of substances, but of the simple qualities of substances, taken separately, and modern science tends to show that sensible qualities have one, and only one cause. The cause of heat, for instance, is an oscillatory motion of the particles of bodies which manifest heat. Similarly, there is one, and only one condition of sound, light, colour, &c. Bacon would say that heat has one formal cause, namely, the oscillatory motion of particles, but that it has many efficient and material causes, since it may be generated in one body by friction, in another by combustion, and so on. We, on the other hand, should say that heat has only one cause, namely, the oscillatory motion of particles. It is incorrect to say that heat is *caused* by friction. Friction is *followed by* heat: but this is what Mill would

4. Physic (taking it according to the derivation, and not according to our idiom for medicine¹⁷) is situate in a middle term or distance between natural history¹⁸ and metaphysic. For natural history¹⁹ describeth the variety of things; physic the causes, but variable or respective²⁰ causes; and metaphysic the fixed and constant causes.

*As fire this figure hardens, made of clay;
And this of wax with fire consumes away.*

Fire is the cause of induration, but respective to clay; fire is the cause of colliquation, but respective to wax. But fire is no constant cause either of induration or colliquation; so then the physical causes are but the efficient and the matter. Physic hath three parts,²¹ whereof

call an *empirical* as distinguished from a *causal* law, and may be *explained*, i.e. resolved into the laws that friction produces motion, and motion produces heat. (Mill's *Logic*, Bk. 3, ch. 12.) If this be so, Bacon's method, if it could be applied, would give certain conclusions, for the one antecedent which cannot be eliminated without involving the disappearance of the effect must be *the cause of the effect*. The real defects of Bacon's method lie deeper. His conception of scientific method is absurd and impracticable, for these reasons; firstly, he thought that discovery could be reduced to a mere mechanical process; secondly, the conditions which his method requires can never be fulfilled. The whole collection of truths known to the physical science of our own day is but an imperfect contribution to the experience 'committed to writing,' which has to be completed before his method can be applied. See § 6, n. 59, and xiii. 5, n. 43. Even if we grant all that Bacon assumes, still his method would be impracticable. Let us grant that a given quality has only one cause, and that we have as complete a record of all its manifestations as it is possible to have, without actually knowing the cause of it. Still, it does not follow that the process of elimination would bring the cause to light. It would certainly require a hypothesis, and, most probably, an ingenious experiment, to force the cause to reveal itself. Any one who will reflect how impossible it would have been to establish the undulatory theory of light by Bacon's mechanical method, will see at once how futile that method is. Bacon utterly failed to appreciate the complexity of nature when he imagined that we could resolve a substance into its qualities, as easily as we can resolve a word into the letters of which it is composed.

¹⁷ For medicine, cp. p. 112, n. 53.

¹⁸ In a middle term between, half way between. Cp. p. 76, n. 67.

¹⁹ Natural history, see p. 120, § 3.

²⁰ Respective, relative: i.e. differing according to the material. See above n. 14, and cp. below l. 8. 'Respective to clay,' i.e. in the particular substance of clay. Fire produces a different effect on other material.

²¹ There are three branches of physic. The first deals with the universe as a whole ("collected into one entire total"), and viewed as exhibiting one

two respect nature united or collected, the third contemplateth nature diffused or distributed. Nature is collected either into one entire total, or else into the same principles or seeds. So as the first doctrine is touching the contexture or configuration of things, as *concerning the world, or universe*. The second is the doctrine concerning the principles or originals of things. The third is the doctrine concerning all

uniform structure throughout all its parts ("the contexture and configuration of things"). To this branch of physic would belong the establishment of the Atomic theory, viz., that the matter of which all bodies are formed is not continuous, but consists of an aggregate of an immense number of small portions or atoms. The second branch of physic deals with the consideration of these atoms, which are the elements of all things ("the principles or originals of things"). The student may notice that the word "principles," used in the sense of "elements," is taken from the Latin word "*principia*," which denotes the ultimate particles of which matter is composed. To this second branch of physic, would belong the consideration of the molecular states of bodies. There are two sub-divisions of the third branch of physic, the first dealing with substances in the concrete, the second dealing with the attributes or qualities of substances ("their differing qualities and natures"). I have pointed out already, p. 166, n. 16, that the word "natures" is equivalent to "qualities." Bacon remarks that this third branch of physic is only an interpretation and explanation (p. 170, l. 3, "gloss and paraphrase") of natural history. The distinction between it and natural history may be briefly expressed thus : *Natural history provides a record of the phenomena, which this branch of physic has to account for by assigning their material and efficient causes.* This third branch of physic will coincide with what we now call physical science. Bacon remarks in the *De Aug.* that the physic which deals with substances in the concrete may be divided, as natural history was divided, into—(i.) the study of all natural phenomena, both ordinary and extraordinary, and (ii.) the study of phenomena artificially produced. See p. 120, § 3, and p. 120, n. 17. Two simple examples will make plain the relation of this third branch of physic to natural history. Natural history tells us that there are in nature certain substances, such as gold, silver, iron, coal, &c. The physic which deals with concrete substances assigns the material and efficient causes of these : for instance, it tells us that coal is produced by the action of pressure on vegetation. Again, natural history tells us that these substances possess certain qualities, such as hardness, thickness, cohesion, expansion, heat, etc. The physic which deals with the qualities of substances, assigns their material and efficient causes. For instance, it tells us that hardness in clay is due to the application of fire. Of the two sub-divisions of the third branch of physic, Bacon remarks in the *De Aug.* that the first, as dealing with substances, approaches nearer to natural history, while the second, as dealing with qualities, approaches nearer to metaphysic. It is distinguished from metaphysic by the circumstance that it assigns not "the forms" or universal conditions of qualities, but their

variety and particularity of things; whether it be of the differing substances, or their differing qualities and natures; whereof there needeth no enumeration, this part being but as a gloss or paraphrase that attendeth upon the text of natural history. Of these three I cannot report any as deficient. In what truth or perfection they are handled, I make not now any judgement; but they are parts of knowledge not deserted by the labour of man.

5. For metaphysic, we have assigned unto it the inquiry of formal and final causes²²; which assignation, as to the former of them, may seem to be nugatory and void, because of the received and inveterate opinion, that the inquisition of man is not competent to find out essential forms or true differences²³: of which opinion we will take this hold, that the invention of forms is of all other parts of knowledge the worthiest to be sought, if it be possible to be found. As for the possibility,²⁴ they are ill discoverers that think there is no land, when they can see nothing but sea. But it is manifest that Plato, in his

proximate causes in a given substance, p. 173, l. 2. In the sphere of physic Bacon, in the *De Aug.*, regrets that there is no science of physical astronomy. The phenomena of the heavens have, he says, been often and ingeniously explained, cp. viii. 5, but we want a knowledge of the composition of the heavenly bodies, of the causes and laws of their motions, and of their influence. Bacon acutely remarks that celestial and terrestrial motions should be studied together, inasmuch as they influence one another, and obey common laws. His anticipation that the study of celestial motions would throw light on terrestrial motions has been fulfilled by the establishment of the theory of the tides, and the theories of precession and nutation, and the determination of the earth's figure, which depends on the law of universal gravitation. The student should notice that Bacon knew nothing of Kepler's astronomical discoveries and that he persistently rejected the Copernican theory. See p. 58, § 5, n. and ix. 1. In extenuation it may be pleaded that the theory was rejected by many eminent men of the day, and that it was not then supported by the same weight of evidence as now. Bacon also regrets, in the sphere of physic, the absence of a rational astrology, based on physical laws. He mentions, only to reject them, the grosser fictions of astrology, but he thought it possible to constitute a sound astrology. See p. 51, n. 22.

²² *Formal and final causes*, see p. 165, n. 16.

²³ *Essential forms or true differences*, the two expressions are equivalent. The "form" of a quality is often called by Bacon its "true difference." By its "true difference" is meant "its distinguishing characteristic," i.e. its essence: and essence is equivalent to form.

Of which opinion we will take this hold, i.e. from which we may at least infer.

²⁴ *As for the possibility, &c.* Notice Bacon's hopefulness, cp. p. 117, l. 17, sq.

opinion of ideas, as one that had a wit of elevation²⁵ situate as upon a cliff, did descry *that forms were the true object of knowledge*; but lost the real fruit of his opinion, by considering of forms as absolutely abstracted from matter,²⁶ and not confined and determined by matter; and so turning his opinion upon theology,²⁷ wherewith all his natural philosophy is infected. But if any man shall keep a continual watchful and severe²⁸ eye upon action, operation, and the use of knowledge,²⁹ he may advise and take notice what are the forms, the disclosures whereof are fruitful and important to the state of man. For³⁰ as to the forms of substances (man only except,³¹ of whom it is

²⁵ *That had a wit of elevation, &c.* In the *De Aug.* it is, "who viewed everything as if from a high rock," i.e. who took a comprehensive view of things.

²⁶ *Abstracted from matter.* Each individual of a class possesses all the attributes connoted by the class name. Plato held that corresponding to every class there was a form, or 'idea.' This form existed in a supra-sensible world, and individuals possessed the attributes, which they had in common, in virtue of their participating in the nature of this form. For instance, there is a form of man, a form of horse, &c., from which individual men and horses derive their attributes. This is a fanciful theory invented to explain the existence of general ideas. *Determined*, p. 156, n. 60. The "form" of Bacon is not something outside of material objects, but is a particular state of matter. For instance, the form of heat is a motion of the material particles of a body.

²⁷ *Upon theology, &c.*, p. 60, n. 72.

²⁸ *Severe*, strict.

²⁹ *The use of knowledge*, see p. 48, n. 96. *Advise*, p. 96, n. 34.

³⁰ Bacon now explains why we should seek for the forms of *qualities* rather than of *substances*. All substances in nature are the result of a few forms combined in different proportions, p. 175, l. 11—13. Because these forms are few in number, just as the letters of an alphabet are few relatively to the words that can be composed of them, and because a knowledge of them would enable us to assign the cause of every phenomenon, and, theoretically, to construct the universe, therefore science must proceed by first forming an exhaustive list of all the "simple natures" or attributes into which phenomena may be resolved, and then discovering the forms of these simple natures.

The form of a *substance* is the sum of the forms of its qualities, and it is easier to study the forms singly than in combination, p. 172, l. 3, sq. This is true. Wherever we have a complex effect representing the sum of the effects of several causes acting together, we must study the law of each cause separately, if we wish to know the conditions under which the effect will be produced. We cannot study the cause of the effect as a whole because, when the forms combine, the effects of some of them are modified, and the effects of others altogether counteracted, so that they are not perceptible in the total effect. See Mill's Logic, Bk. 3, ch. 10—11.

³¹ *Man only except*, i.e. excepted. Bacon makes this exception to guard

said, *God formed man of the dust of the ground, and breathed into his nostrils the breath of life*, and not as of all other creatures, *Let the waters bring forth, let the earth bring forth*), the forms of substances I say (as they are now by compounding and transplanting⁸³ multiplied) are so perplexed, as⁸⁴ they are not to be inquired; no more than it were either possible or to purpose⁸⁵ to seek in gross the forms of those sounds which make words, which by composition and transposition of letters are infinite. But on the other side to inquire the form of those sounds or voices which make simple letters is easily comprehensible; and being known induceth⁸⁶ and manifesteth the forms of all words, which consist and are compounded of them.⁸⁷ In the same manner to inquire the form of a lion, of an oak, of gold; nay, of water, of air, is a vain pursuit; but to inquire the forms of sense, of voluntary motion, of vegetation, of colours, of gravity and levity, of density, of tenuity, of heat, of cold, and all other natures and qualities, which, like an alphabet, are not many, and of which the essences⁸⁸ (upheld by matter) of all creatures⁸⁹ do consist; to inquire, I say, the true forms of these,

himself against the charge of heresy. It is an article of Christian faith that the rational soul is the substantial form of men. E. Cp. xi. 1.

⁸² *By compounding and transplanting*, i.e. by the combination in various proportions of the forms of their qualities. See above, n. 30.

⁸³ *As*, that. Bacon adds in the *De Aug.* that the inquiry into the forms of substances must at any rate be put off until the forms of "simple natures" have been discovered.

⁸⁴ *To purpose*, useful. We should say "to the purpose." *In gross*, i.e. when the forms of separate sounds are combined so as to make a word. The form of a sound is the position of the vocal organs necessary to produce it. The form of a word, according to Bacon, is the combination of those positions of the vocal organs which are necessary to the simultaneous utterance of each letter in the word.

⁸⁵ *Induceth*, leads us to. The word is used in its literal sense.

⁸⁶ Cp. viii. 3. The lion, the oak, and gold are given as instances of *substances*, the forms of which cannot be discovered. See n. 30. *Of sense, of voluntary motion*, Bacon has some remarks on the forms of these in the *De Aug.*, Bk. 4, ch. 3. See below, xii. 1, n. 62. *Of heat*, the inquiry into the form of heat is selected as an illustration of his method of discovery in the *Nov. Org.* He has also left behind him a treatise on heat and cold, and one on density and rarity.

⁸⁷ *The essences*, the forms. See p. 175, n. 58, and p. 170, n. 23. *Up held by matter*, because the matter is the embodiment of the form. See p. 171, n. 26. With this passage cp. p. 175, ll. 12—13.

⁸⁸ *Creatures*, p. 44, n. 82.

is that part of metaphysic which we now define of. Not but that physic³⁹ doth make inquiry and take consideration of the same natures : but how? Only as to the material and efficient causes of them, and not as to the forms. For example, if the cause of whiteness in snow or froth be inquired, and it be rendered thus, that the subtle intermixture of air and water is the cause, it is well rendered ; but nevertheless is⁴⁰ this the form of whiteness? No ; but it is the efficient, which is ever but *the carrier of the form*.⁴¹ This part of metaphysic I do not find laboured and performed : whereat I marvel not : because I hold it not possible to be invented by that course of invention which hath been used, in regard that men⁴² (which is the root of all error) have made too untimely a departure and too remote a recess from particulars.

*Metaphysic or
of the forms
and ends of
things.*

6. But⁴³ the use of this part of metaphysic, which I report as deficient, is of the rest the most excellent in two respects ; the one, because it is the duty and virtue⁴⁴ of all knowledge to abridge the infinity of individual experience,⁴⁵ as much as the conception of truth

³⁹ *Not but that physic, &c.*, see p. 169, n. 21.

⁴⁰ Bacon adds in the *De Aug.* that the intermixture of air and water cannot be the *form* of whiteness, since whiteness is produced also by the intermixture of air and powdered glass or crystals, whereas it has only *one* form, viz., some particular collocation of the ultimate particles of bodies which manifest whiteness.

⁴¹ *The carrier of the form*, the efficient cause or instrument carries the form into the matter on which it acts, and in which the form is embodied.

⁴² *In regard that man, &c.*, see p. 58, n. 60. and cp. viii. i and xvii. 6. By "too untimely a departure" Bacon means that men have generalised before collecting evidence which would support their generalisations. By "too remote a recess" he means that they have deserted the safe ground of experience, and based their generalisations simply on their own fancies. See p. 44, n. 82.

⁴³ We have now considered the meaning of the word form, and the reasons for studying the forms of qualities. Now the question naturally arises, what is *the use* of a knowledge of forms? (i.) It enables us to connect the countless phenomena of nature by a few principles; (ii.) a knowledge of the forms of qualities will enable us to produce them in any material.

⁴⁴ *Virtue*, characteristic excellence.

⁴⁵ *To abridge the infinity of individual experience*, i.e. to shorten the task of investigation by showing how a small number of laws will explain a great number of instances. Every general law is true of a whole class of instances. Before the establishment of the law, a separate study of each instance was

will permit, and to remedy the complaint of *life is short⁴⁶ and art is long*; which is performed by uniting the notions and conceptions of sciences. For knowledges are as pyramides,⁴⁷ whereof history is the basis. So of natural philosophy, the basis is natural history; the stage next the basis is physic; the stage next the vertical point is metaphysic. As for the vertical point, *the work which God worketh from the beginning to the end*, the summary law of nature, we know not whether man's inquiry can attain unto it. But these three⁴⁸ be the true stages of knowledge, and are to them that are depraved⁴⁹ no better than the giants' hills:⁵⁰

necessary, but when the law is established, *all* the instances which are embraced by it are explained once for all, and the infinity of individual experience, (*i.e.* of an empirical study of particular cases) is abridged to that extent. Bacon explains that this is effected by "uniting the notions and conceptions of sciences," *i.e.* by resolving the inductions of the separate sciences into more comprehensive inductions. The student will understand that this resolution is effected by the discovery of forms. Science may be compared to a pyramid. The base is history, *i.e.* we begin with a description or enumeration of the phenomena to be explained. Next above the base comes physic, *i.e.* we have proceeded one step in the simplification of phenomena, when we have assigned their material and efficient causes. The stage next below the apex is metaphysic, *i.e.* we have proceeded, as far as is possible, in the process of simplifying phenomena when we have assigned their forms: because we have then learnt to regard all phenomena as the results of a few simple laws. This result is attained by "uniting the notions and conceptions of sciences," because the different sciences establish laws as to the various causes by which a given quality or substance may be produced, while metaphysic resolves or explains these different laws into one more general law which comprehends them all. I have already commented on this process of explanation, on p. 167, n. 16. The apex of the pyramid which, perhaps, is beyond our reach (though on p. 9, l. 4, sq., Bacon says that it is not necessarily so) is the law of the primary qualities of matter. See p. 9, n. 35.

⁴⁶ *Life is short, &c.*, taken from an aphorism of Hippocrates.

⁴⁷ *Pyramides*, the Greek plural. Cp. "Rather make my country's high pyramides my gibbet."—*Antony and Cleopatra*, 2, 5, 61.

⁴⁸ *These three*, viz., history, physic, and metaphysic.

⁴⁹ *Them that are depraved*, In the *De Aug.* it is "men who are puffed up with their own knowledge, and who fight against God."

⁵⁰ *The giants' hills*, the giants of the Greek mythology impiously attempted by piling three mountains of Thessaly one upon another, to make for themselves a road by which they might reach and attack Jupiter in heaven. Cp. the Jewish legend alluded to on p. 68, § 8. Bacon means to say that the possession of knowledge leads some to deny God, but that it convinces the wise of the greatness and power of God. See Bk. i., 1., p. II, n. 53.

*With mountains piled on mountains thrice they strove
To scale the sleepy battlements of Jove.*

But to those which refer all things to the glory of God, they are as the three acclamations, *Holy, holy, holy!*⁵¹ holy in the description or dilatation⁵² of his works; holy in the connexion or concatenation⁵³ of them; and holy in the union of them in a perpetual and uniform law. And⁵⁴ therefore the speculation was excellent in Parmenides and Plato, although but a speculation in them, that all things by scale did ascend to unity. So then always that knowledge is worthiest which is charged⁵⁵ with least multiplicity, which appeareth to be metaphysic; as that which⁵⁶ considereth the simple forms or differences of things, which are few in number, and the degrees and co-ordinations whereof make all this variety. The second respect, which valueth⁵⁷ and commendeth this part of metaphysic, is that it doth enfranchise⁵⁸ the

⁵¹ *Holy, holy, holy.* This is the form of adoration which, according to the Christian scriptures, is used in heaven.

⁵² *The description and dilatation, i.e. the extent and vastness.* Bacon uses terms more appropriately applied to writings, because the multitude of God's works is shown by 'history.'

⁵³ *Concatenation,* p. 51, n. 23. The phrase "holy in" is equivalent to "deserving adoration on account of."

⁵⁴ Bacon has misunderstood the word *unity* as applied by Parmenides. He did not attempt to discover unity or law amid the variety of phenomena: but attributed the quality of oneness or unity to "being," which is a pure abstraction and quite distinct from sensible phenomena, to which, indeed, Parmenides denied real existence. He lived in the 5th century, B.C. Bacon has also misunderstood Plato, whose difficulty was to understand how things could be at the same time one and many, *i.e.* how the individuals of a class could be distinct and yet be called by a common name. The oneness or unity therefore which Plato was in search of was the element common to the members of a class. See p. 171, n. 26.

⁵⁵ *Charged*, burdened. In the *De Aug.* it is, "which burdens the mind least with a multiplicity of details."

⁵⁶ *As that which,* *i.e.* since it is the kind of knowledge which. With this passage cp. p. 171, n. 30.

⁵⁷ *Valueth*, renders valuable.

⁵⁸ *It doth enfranchise, &c.* When we have attained to the knowledge of forms, we have increased human power as far as it is possible to do. When we know the physical causes of an effect we can produce that effect wherever we can command the same efficient and the same material that we have observed the effect to be produced by: but we cannot produce it otherwise. For instance, if hardness is produced by the action of fire on clay, then we can produce hardness only when we can command fire and clay. We cannot

power of man unto the greatest liberty and possibility of works and effects. For physic carrieth men in narrow and restrained ways, subject to many accidents of impediments, imitating the ordinary flexuous courses of nature. But *to the wise there are broad paths every way*; to sapience (which was anciently defined to be *the knowledge of things divine and human*) there is ever choice of means. For physical causes give light to new invention in *like matter*. But whosoever knoweth any form, knoweth the utmost possibility of superinducing that nature⁵⁹ upon any variety of matter; and so is less

be certain either that the action of fire on any other material than clay will produce hardness, or that clay will become hard under the action of any other efficient than fire. So far then as it depends on the knowledge of physical causes, our power is very limited. But the case is different when we know the forms of the different qualities of which coal is composed: we can then superinduce these qualities upon any material whatever—we can transmute any thing into coal, under any possible variety of conditions. "The ways of sapience, *i.e.* metaphysic, are not much liable either to particularity or chance," *i.e.* in producing effects by means of their forms, man will find that he is neither limited in power, nor liable to hindrance. He will find that he has both "*certainty and liberty.*" See the *Interpretation of Nature*, ch. II, and cp. below, viii. 3.

⁵⁹ *Nature*, p. 169, n. 21. The student of Logic will perceive that Bacon's remark, 'that physic carrieth men in narrow and restrained ways' when applied not to *substances*, but to *qualities*, is equivalent to the saying of Mill, that empirical laws cannot be extended beyond the limits of place and time within which they have been found by experience to hold good. Mill's *Logic*, Bk. 3, ch. 16. Given *the form* or cause of an effect, the effect must follow. But the effect will not follow necessarily the 'physical cause,' *i.e.* a mere antecedent if that antecedent is not the cause.

It may be well here to consider what names we should now substitute for the Baconian first philosophy, physic and metaphysic, and how we should now assign the problems which they comprehend. The first half of *the first philosophy* which aims at the unification of knowledge, corresponds to philosophy, as it is defined by Herbert Spencer. The second half of it, which deals with the origin and distribution of living organisms and of matter, together with the first two divisions of 'physic,' which deal with the construction of things and the nature of their constituent elements, make up what we should now call Natural Philosophy. The third branch of 'physic,' which considers the conditions of the existence and production of substances and qualities, corresponds to the modern Physical Science. That part of 'metaphysic' which deals with the discovery of forms or, in other words, of the one universal condition of sensible qualities, we may call Physics. The inquiry into Final Causes has been banished from science, as Bacon wished that it should be, and survives, if any where, only in Natural Theology.

restrained in operation, either to the basis of the matter, or the condition of the efficient; which kind of knowledge Salomon likewise, though in a more divine sense, elegantly describeth; *when thou goest, thy steps shall not be straitened; and when thou runnest, thou shalt not stumble.* The ways of sapience are not much liable either to particularity or chance.

7. The⁶⁰ second part of metaphysic is the inquiry of final causes, which I am moved to report not as omitted but as misplaced. And

Bacon's anticipation that the forms of qualities would be easily discovered has not been fulfilled. The physical causes, or, in other words, the empirical laws of phenomena, are first discovered, either because they have presented themselves spontaneously to observation, or because they have been made to disclose themselves by experiment. The discoveries of Physics come latest; indeed, they are only just being entered upon. Bacon, curiously, imagined that his method would reduce all intellects to the same level: that, if it were only employed, no matter by whom, the forms of qualities would infallibly be discovered by it. But we cannot fix the times and seasons at which discoveries shall be made: it is the privilege of imaginative genius to devise the experiments, which bring great truths to light.

Bacon also over-estimated the power which the discovery of causes would give to men. The spheres of science and power are not *always* coincident. We may know the conditions of an effect, and yet not be able to command those conditions. This does not at all lessen the value of knowledge. We do not now lay such exclusive stress on the practical applications of science, as Bacon did. It is no longer necessary, as it was in his days.

Bacon's great merit is that he pointed out the danger of hasty generalization, and insisted, as strongly as any modern writer could do, on the fact that induction must rest on a knowledge of causes.

⁶⁰ Bacon objects to the teleological method for two reasons: (i.) It diverts men from the study of physical causes, and so impedes the progress of science. The question for science is not, what purpose does a thing serve? but on what conditions does it depend? (ii.) It leads to no practical results. See p. 112, n. 50. At the same time he thinks that teleology may be properly applied by metaphysic to show the greatness of God, by pointing to the evidences of design in the universe. For the fallacies involved in the teleological method, see Fowler's *Inductive Logic*. It is purely anthropomorphic. It rests on the unwarranted assumption that God works as man works, and that, therefore, the human reason must be capable of determining the laws of the divine action. See Herbert Spencer's *First Principles*, Pt. i., ch. 5, and Lange's *History of Materialism*, Vol. i., ch. 3. An instance will make the nature of this method clear. It is found, speaking generally, that the colour of birds' plumage is such as to protect them from the sight of those creatures who are their natural enemies. The teleological method would lead to the conclusion, that God created them with their present hues, in order to protect them from

yet if it were but a fault in order, I would not speak of it: for order is matter of illustration, but pertaineth not to the substance of sciences. But this misplacing hath caused a deficiency, or at least a great improficiency⁶¹ in the sciences themselves. For the handling of final causes, mixed with the rest⁶² in physical inquiries, hath intercepted the severe⁶³ and diligent inquiry of all real and physical causes, and given men the occasion to stay upon these satisfactory and specious causes, to the great arrest and prejudice of further discovery. For this I find done not only by Plato⁶⁴ who ever anchoreth upon that

destruction. Science, on the other hand, says that those birds have survived and propagated their species whose colours, in the first instance, hid them from the sight of their enemies; while those of a different colour are constantly being killed. There is another reason, why the modes of human action cannot be assigned to God, namely, that the processes of nature are carried out with a wastefulness and a dilatoriness which cannot be attributed to Omnipotence working after the fashion of men. See Lange, Vol. 3, ch. 4, and Darwin's *Origin of Species*, 6th Ed., p. 49. But it is said that the teleological method has led to discoveries: that, for instance, Hervey discovered the circulation of the blood by means of it. The amount of truth contained in this assertion is this, that a consideration of the purposes which a thing serves may put us on the track of the law of its development, or that the consideration of the necessity of an agent to account for a given phenomenon may suggest observations and experiments, which will result in the discovery of the actual existence of such an agent. In other words, the idea of *purpose* fulfils the function of hypothesis. In short, we cannot say that things were created, as they are, to discharge the functions which they do discharge, but that things *have become* what they are by a gradual adaptation of creatures to their surroundings. For the idea of *purpose* or *design* we must substitute that of *adaptation*. The student will perceive that, though the application of teleology to the explanation of individual objects must be renounced, yet there is nothing to prevent our viewing God as the author of the Laws of Nature which all phenomena obey. This is certainly a more exalted conception of God than that of the teleologists.

The student will find an instance of the application of the teleological method in the spheres of Natural Theology and Ethics in the *Analogy and Sermons* of Butler.

⁶¹ *Improficiency*, absence of progress.

⁶² *The rest*, the formal and physical causes.

⁶³ *Severe*, p. 171, n. 28. *Satisfactory causes*, i.e. 'such causes as will satisfy the mind of man and quiet objections.' *Interpretation of Nature*, Ellis and Spedding's Ed., Vol. iii., p. 232, cp. *Nov. Org.*, i., 81.

⁶⁴ *By Plato, &c.*, p. 60, n. 72. *Anchoreth on that shore*, i.e. clings closely to the doctrine of final causes.

shore, but by Aristotle, Galen⁶⁵ and others which do usually likewise fall upon these flats of discoursing causes.⁶⁶ For to say that *the hairs of the eye-lids are for a quickset and fence about the sight*; or that *the firmness of the skins and hides of living creatures is to defend them from the extremities of heat or cold*; or that *the bones are for the columns or beams, whereupon the frames of the bodies of living creatures are built*; or that *the leaves of trees are for protecting of the fruit*; or that *the clouds are for watering of the earth*; or that *the solidness of the earth is for the station and mansion of living creatures*,⁶⁷ and the like, is well inquired and collected⁶⁸ in metaphysic, but in physic they are impertinent.⁶⁹ Nay, they are indeed but *remoraes* and hindrances to stay and slug⁷⁰ the ship from further sailing; and have brought this to pass, that the search of the physical causes hath been neglected and passed in silence. And therefore the natural philosophy of Democritus⁷¹ and some others, who did not suppose a mind or reason in the frame of things, but attributed the form thereof able to maintain itself to infinite essays or proofs⁷² of nature, which they term fortune, seemeth to me

⁶⁵ *Galen*, a celebrated writer on medical science, who lived in the second century A.D. Ellis refers to a treatise of his "*On the use of the parts of the body*," which is in effect a treatise on the doctrine of final causes as exemplified in animal physiology. Galen calls the last book, which introduces the general considerations to which the subject leads, the epode of the whole work: explaining that he does so, because the epode is sung while the chorus stands at the altar of the deity.

⁶⁶ *These flats of discoursing causes*, these shallow and unstable causes. The metaphor of 'discoursing,' i.e. discursive or moving, is taken from treacherous ground. The man of science stands on firm ground only when he knows the *physical causes* of phenomena.

⁶⁷ *For the station and mansion of creatures*, i.e. to enable creatures to rest and dwell upon it.

⁶⁸ *Collected*, inferred. We use the verb 'to gather' in the same sense.

⁶⁹ *Impertinent*, p. 118, n. 96. *Remoraes*, impediments. See p. 101, n. 75.

⁷⁰ *To slug*, to hinder. That the application of teleology has impeded the progress of science is historically true. See Fowler's *Inductive Logic*, 3rd Ed., pp. 336—351.

⁷¹ *Democritus*, see p. 53, n. 36.

⁷² *Proofs*, trials. All phenomena, according to Democritus, are products of matter and motion. The primordial atoms, obeying a necessary law, (which they term fortune, l. 17,) collided, and thus coalescing assumed the shape which substances now manifest. But they assumed countless tentative or inchoate shapes before they definitely settled down into their present form which is "able to maintain itself." l. 16.

(as far as I can judge by the recital⁷³ and fragments which remain unto us) in particularities of physical causes⁷⁴ more real and better inquired than that of Aristotle and Plato⁷⁵; whereof both intermingled final causes, the one as a part of theology, and the other as a part of logic, which were the favourite studies respectively of both those persons. Not because⁷⁶ those final causes are not true, and worthy to be inquired, being kept within their own province; but because their excursion into the limits of physical causes hath bred a vastness⁷⁷ and solitude in that tract. For otherwise, keeping their precincts and borders, men are extremely deceived if they think there is an enmity or repugnancy at all between them. For the cause rendered, that *the hairs about the eye-lids are for the safeguard of the sight*, doth not impugn the cause rendered, that *pilosity is incident to orifices of moisture*; *the mossy springs, &c.*⁷⁸ Nor the causes rendered, that *the firmness of hides is for the armour of the body against extremities of heat or cold*, doth not impugn the cause rendered, that *contraction of pores⁷⁹* is *incident to the outwardest parts in regard of their adjacency*.

⁷³ *The recital*, the account.

⁷⁴ *In particularities of physical causes*, i.e. in the matter of assigning the physical causes of individual phenomena. *More real and better inquired*, In the *De Aug.* it is, "to have been more sound, and to have gone deeper into the nature of things."

⁷⁵ Bacon adds in the *De Aug.* that Aristotle is a greater offender, in this respect, than Plato, because he attributed design not to God but to Nature; he therefore embraced the doctrine of final causes out of love not for theology but for logic. It is a well known saying of Aristotle that "Nature does nothing without a purpose." Bacon remarks that Aristotle based his doctrine of final causes on logic, l. 4.; which is true. Aristotle argued that as in human production we first frame the idea of the thing to be produced as a whole, and then proceed to work it out in detail, nature must proceed in the same way.

⁷⁶ *Not because*, i.e. I do not condemn Plato and Aristotle because, &c.

⁷⁷ *Vastness*, used in its literal sense of 'a waste,' or 'wilderness.' For the metaphor cp. the use of 'waste' on p. 116, l. 20. *Keeping*, i.e. if final causes keep.

⁷⁸ *The mossy springs, &c.*, the beginning of a passage in Virgil, to the effect that the flocks shall have water, grass, and shade, to protect them from the summer heat.

⁷⁹ *That contraction of pores, &c.* It is expressed more plainly in the *De Aug.* thus, "that the hardness of the skin (firmness of hides) is due to the contraction of the pores," &c. This is the *physical cause* of the hardness. *In regard of*, on account of.

to foreign or unlike bodies: and so of the rest: both causes being true and compatible, the one declaring an intention, the other a consequence only. Neither doth this call in question, or derogate from divine providence, but highly confirm and exalt it. For as in civil^{so} actions he is the greater and deeper politique,^{s1} that can make other men the instruments of his will and ends, and yet never acquaint them with his purpose, so as they shall do it and yet not know what they do, than he that imparteth his meaning to those he employeth; so is the wisdom of God more admirable, when nature intendeth^{s2} one thing, and providence draweth forth another, than if he had communicated to particular creatures and motions the characters and impressions^{s3} of his providence. And thus much for metaphysic; the latter part^{s4} whereof I allow as extant, but wish it confined to his proper place.

VIII. Pp. 181—198. Bacon makes mathematics, which generally ranks as an independent science, a branch of metaphysic; partly, because of the abstract nature of the science, and partly, because quantity, with which it deals, is a *form* that is productive of many effects in nature. The abstract character of the science is the cause of its having been brought to such perfection, for the mind of man is, unfortunately, prone to deal with abstractions.

Pure mathematics comprises arithmetic and géometry, dealing respectively

^{so} Civil, political.

^{s1} *Politique*, p. 7, n. 23.

^{s2} *Intendeth*, does. Nature acts blindly, and God turns the result of its action to a useful purpose: e.g., He makes the hardness of the skin, which is the result of a natural law, serve the purpose of a protection. With the whole of this passage, cp. Hooker's *Ecclesiastical Polity*, i., 3, § 4. "Each thing both in small and in great, fulfilleth the task which destiny hath set down. . . . What they do they know not, yet is it in shew and appearance as though they did know what they do: and the truth is they do not discern the things which they look on. . . . Those things which nature is said to do are by divine art performed, using nature as an instrument: nor is there any such art or knowledge divine in nature herself working, but in the guide of nature's work."

^{s3} *Character and impressions*, the two words are equivalent. See p. 5, n. 19 and p. 68, n. 23.

In the *De Aug.* Bacon adds a few remarks to the effect that science proves the existence of God. It is impossible, he says, to explain the world, as Democritus attempted to do, by the mere action of atoms, without assuming a mind which directs it. If, however, we attribute purpose to *nature*, as Aristotle did, p. 180, n. 75, then there is no need of a God. Aristotle's doctrine is practically Pantheism.

^{s4} *Latter part*, viz., that which deals with final causes.

with quantity discrete and continuous. Mixed mathematics is mathematics applied to the solution of complex physical problems. Bacon anticipates a great extension of applied mathematics.

In pure mathematics Bacon notes no deficiencies, except that men have not sufficiently estimated its value as an intellectual exercise.

Passing to the operative part of natural philosophy (p. 162, l. 2, sq.), Bacon divides it into experimental, philosophical, and magical, corresponding respectively to natural history, physic, and metaphysic. The first comprehends results obtained by mere observation of, or experiment upon particulars, made upon no regular principle. The second comprehends discoveries resulting from the knowledge of physical causes. The third, which alone promises any great results, comprehends discoveries attained by the knowledge of formal causes. But since formal causes are imperfectly known, it follows that magic also is defective. The magic which exists is full of the most fanciful conceits, and stands in much the same relation to true magic as fable does to history. It is not that it aims at impossible results, but that it prescribes the most extravagant means. Just as truth is sometimes stranger than fiction, so the results of the true magic may far surpass those of the false. The transmutation of metals is far more likely to be accomplished by the knowledge of forms, than by all the *nostrums* of alchemists and magicians.

To direct men in their inquiries, Bacon proposes that a list be made out of discoveries already made, and of results which are held to be impossible, or which are yet to be attained, and that by the side of each unattained result be recorded the nearest approach that has yet been made to it. He also remarks, and truly, that experiments are not to be despised because they have no immediate practical results.

Here ends Bacon's exposition of Natural Philosophy. He has not written in a polemical spirit. If his doctrine is true, nature will confirm it. Truth should effect as peaceable an entry into the mind as Borgia did into Naples.

Before finally dismissing the subject, he remarks that those particular points in natural philosophy, which are as yet doubtful, must be registered, and carefully distinguished from points which are definitely settled. This will prevent premature dogmatism, and will incite men to the solution of the doubtful points. But when a doubtful point is once settled, discussion about it must cease. Men are, unfortunately, too fond of encouraging doubt. Further, a list should be made of the fictions current in common speech.

A list should also be made of the different theories which have been held as to the constitution of the universe, and the nature of the ultimate particles of matter. The disinterested seeker after truth will be glad to examine the various explanations which have been given of the universe, both in ancient and modern times: for something, most probably, is to be gathered from all of them. These theories, however, must be studied separately, and not in groups: otherwise they will not be properly understood.

VIII. 1. Nevertheless there remaineth yet another part of natural philosophy, which is commonly made a principal part, and holdeth

rank with physic special⁸⁵ and metaphysic, which is mathematic; but I think it more agreeable to the nature of things, and to the light of order,⁸⁶ to place it as a branch of metaphysic. For the subject of it being quantity, not quantity indefinite,⁸⁷ which is but a relative, and belongeth to *first philosophy*, (as hath been said), but quantity determined⁸⁸ or proportionable, it appeareth to be one of the essential forms⁸⁹ of things, as that that is causative in nature of a number of effects; insomuch as we see in the schools both of Democritus⁹⁰ and of Pythagoras, that the one did ascribe figure to the first seeds⁹¹ of things, and the other did suppose numbers to be the principles⁹² and originals of things. And it is true also that of all other forms (as we understand forms) it is the most abstracted⁹³ and separable from matter, and therefore most proper to metaphysic; which hath likewise been the cause why it hath been better laboured and inquired than any of the other forms, which are more immersed into matter.⁹⁴ For it being the nature of the mind of man (to the extreme prejudice of knowledge) to delight in the spacious liberty of generalities,

⁸⁵ *Physic special*, i.e. the third branch of physic mentioned on p. 169, l. 6, sq.

⁸⁶ *The light of order*, clear arrangement.

⁸⁷ *Quantity indefinite*, i.e. the greater or less amount in which substances exist in the universe. *Relative*, because the terms *more* and *less* have no meaning absolutely. See p. 152, n. 41.

⁸⁸ *Determined*, limited. Cp. p. 156, n. 60. *Proportionable*, of a fixed amount.

⁸⁹ *Essential forms*, see p. 170, n. 23. *As that that*, as being the circumstance which. The student may compare with this passage Mill's *Logic*, Bk. 3, ch. 5, where he points out how the order of nature flows from the distribution and collocation of the permanent agents of which nature is made up.

⁹⁰ *Democritus*, p. 53, n. 36, and p. 179, n. 72. The difference in the shapes of things is due partly, according to Democritus, to the shape or figure of the atoms of which they are composed. *Pythagoras*, of Samos, was born about B. C. 582. The Pythagoreans, who regarded specially the quantitative relations of things, reduced these to number, and asserted that number was the principle of things and the law of the universe. What they wished to emphasize particularly was the idea of law, order, proportion, or harmony in nature.

⁹¹ *Seeds*, viz., the atoms.

⁹² *Principles*, see p. 169, n. 21.

⁹³ *Abstracted*, &c. Metaphysic deals with the abstract. See p. 165, l. 8, sq. The cause of the abstract character of mathematical calculations is that, since they are true of all things without exception, they can be worked out without special reference to any particular things.

⁹⁴ *Immersed into matter*, see p. 171, n. 26. For the expression, cp. p. 102, l. 9.

as in a champaign region,⁹⁵ and not in the inclosures of particularity,⁹⁶ the mathematics of all other knowledge were the goodliest fields to satisfy that appetite. But for the placing of this science, it is not much material⁹⁷; only we have endeavoured in these our partitions to observe a kind of perspective, that one part may cast light upon another.

2. The mathematics are either pure or mixed. To the pure mathematics are⁹⁸ those sciences belonging which handle quantity determinate,⁹⁹ merely severed from any axioms of natural philosophy; and these are two, geometry and arithmetic; the one handling quantity continued,¹ and the other dissevered.² Mixed hath for subject some axioms or parts of natural philosophy, and considereth quantity determined,³ as it is auxiliary and incident unto them. For many parts of nature can neither be invented with sufficient subtlety, nor demonstrated with sufficient perspicuity, nor accommodated unto use with sufficient dexterity, without the aid and intervening of the

⁹⁵ *A champaign region*, open country.

⁹⁶ *Particularity*, particulars. This complaint is often made by Bacon. Cp. p. 173, ll. 12—14.

⁹⁷ *It is not much material*, Bacon adds in the *De Aug.* “at least to us, who are considering not merely truth and arrangement, but also the interests and comforts of men.” Bacon always keeps in view the practical results of knowledge (p. 48, n. 96,) and the value of mathematics, in his eyes, lies in its power of increasing our knowledge, and, consequently, our power over nature. In the *De Aug.* he says: “I am, in a way, compelled to degrade mathematics, from the rank of an independent science, on account of the arrogance of mathematicians, who wish their science almost to domineer over physic. I know not how it has come to pass that Mathematics and Logic, which ought to consider themselves the handmaids of Physic, boast of their superior certainty and presume to exercise supremacy over it.” Bacon is thinking of the tendency to treat the sciences mathematically or deductively before the necessary inductions have been made. The laws of a science must be first established inductively, and conclusions may then be deduced from them. But the inductive stage must always precede the deductive. See below xiii., §§ 3—4, and cp. Mill’s *Logic*, Bk. 3, ch. 13, § 7.

⁹⁸ *Are belonging*, belong. We should not use the expression now.

⁹⁹ *Determinate*, see above n. 89. *Merely*, p. 123, n. 40. *Axioms*, p. 122, n. 31.

¹ *Continued*, continuous, i.e. lines.

² *Dissevered*, discrete, i.e. numbers, the parts of which are not continuous, but are distinct units.

³ *Determined*, p. 183, n. 88.

mathematics; of which sort are perspective, music,⁴ astronomy, cosmography,⁵ architecture, enginery,⁶ and divers others. In the mathematics I can report no deficiency, except it be that men do not sufficiently understand the excellent use of the pure mathematics, in that they do remedy and cure⁷ many defects in the wit and faculties intellectual. For if the wit be too dull, they sharpen it; if too wandering, they fix it; if too inherent in the sense,⁸ they abstract it. So that as tennis is a game of no use in itself, but of great use in respect it maketh a quick eye and a body ready to put itself into all postures; so in the mathematics, that use which is collateral and intervenient⁹ is no less worthy than that which is principal and intended. And as for the mixed mathematics,¹⁰ I may only make this prediction, that there

⁴ Music, the subject of musical sounds is dealt with by Bacon in his *Natural History*. See Ellis and Spedding's Ed., Vol. ii., p. 385, sq.

⁵ Cosmography, p. 137, § 13.

⁶ Enginery, the art of making machines.

⁷ Do remedy and cure, &c., cp. p. 97, § 2. In the 50th *Essay* Bacon says that "Every defect of the mind may have a special receipt. If a man's wit be wandering, let him study the mathematics. For in demonstrations, if his wit be called away never so little, he must begin again"

⁸ Too inherent in the sense, unable to understand things except in concrete examples.

⁹ Intervenient, indirect, incidental.

When Bacon wrote the *De Aug.* he had some deficiencies to point out in this part of mathematics. He complains that geometry has made little or no progress since the days of Euclid: and that the doctrine of Solids has not been elaborated as it deserved. Algebra, he says, has not been completed: and in Arithmetick he complains that little or nothing has been done to facilitate computation, especially in the matter of Progressions or Series, which admit of a considerable application in physic. Ellis points out that Bacon, in the sphere of geometry, refers only to Euclid, and says nothing of the more important labours of Archimedes and Apollonius, nor of the commencement of the doctrine of Conic Sections made by Plato. Nor does Bacon mention the greatest of all inventions for facilitating arithmetical computation. Napier's Logarithms were published in 1614. In 1618, Robert Napier's account of his father's method and Briggs's first table of logarithms were published. It is evident that mathematicians were giving much attention to the subject. Ellis conjectures that Bacon may have been told that the application of the doctrine of series to arithmetical computation was not as yet brought to perfection, and that he adopted the remark without understanding the importance of the discovery to which it referred, and perhaps without being aware that any such discovery had been made.

¹⁰ This prediction has been fulfilled. Bacon was ignorant of much that had been already accomplished. I have noticed his attitude toward the

cannot fail to be more kinds of them, as nature grows further disclosed. Thus much of natural science, or the part of nature speculative.

3. For¹¹ natural prudence, or the part operative of natural philosophy, we will divide it into three parts, experimental, philosophical, and magical : which three parts active have a correspondence and analogy with the three parts speculative, natural history, physic, and metaphysic. For many operations have been invented, sometime by a casual incidence¹² and occurrence, sometimes by a purposed experiment : and of those which have been found by an intentional experiment, some have been found out by varying or extending the same experiment, some by transferring and compounding divers experiments the one into the other,

Copernican theory ; see p. 170, n. 21. He says nothing of the application of mathematics to statics and dynamics—nor does he refer to the mathematical doctrine of motion, nor to the theory of equilibrium, which is at least as old as Archimedes. The student who cares to see what was being done in the sphere of applied mathematics, and of how many discoveries Bacon was ignorant, may refer to Hallam's *Literary History*, Vol. ii., Pt. 2, ch. 8 : to Ellis and Spedding's Edition of Bacon's Works, Vol. 2, pp. 229—240 : and to Fowler's *Nov. Org. Introd.* § 6.

¹¹ In the *De Aug.* Bacon divides the operative part of natural philosophy into two branches only, viz., mechanic and magic, of which mechanic corresponds to what he here calls the 'philosophical' branch. What he here calls the part 'experimental' is that method of practice which consists in trying experiments without any system or method, by a kind of natural sagacity. See l. II, sq. It corresponds to the "experience, i.e. observations and experiments, committed to writing," to which he refers below, xiii. 5. 'Mechanic,' or what he here calls the part 'philosophical,' proceeds on the basis of physical causes, (p. 187, l. 2, sq.) and the power which it confers is limited accordingly. 'Magic' proceeds on the basis of formal causes, p. 188, l. 1, sq. Bacon adds in the *De Aug.* that there is no operative part corresponding to that part of metaphysic which deals with final causes, since the knowledge of final causes admits of no practical application. See p. 112, n. 50, and p. 177, n. 60.

¹² *Incidence*, coincidence. A casual experiment has often brought the conjunction of two phenomena to light. In the *De Aug.* Bacon says that "all discoveries, which have been made, have been made either by chance or by deliberate experiment : and those which have been intentionally sought for have been made either by the light of causes and laws, or by extending, transferring, and compounding the results of former experiments. This last process is not philosophical, but is a matter of ingenuity and sagacity. True 'mechanic' or 'philosophical prudence' must be based on a knowledge of physical causes."

which kind of invention an empiric¹⁸ may manage. Again by the knowledge of physical causes there cannot fail to follow many indications and designations of new particulars, if men¹⁹ in their speculation will keep one eye upon use and practice. But these are but coastings along the shore: for it seemeth to me there can hardly²⁰ be discovered any radical or fundamental alterations and innovations in nature, either by the fortune and essays of experiments,²¹ or by the light and direction of physical causes.²² If therefore we have reported

¹⁸ *An empiric*, see p. 17, n. 77.

¹⁹ *If men, &c.*, cp. p. 171, l. 6, sq. In the *De Aug.* he adds, referring to the *mechanical problems* of Aristotle, that mechanic has been treated generally by Aristotle, by Hero, an Alexandrian physicist who flourished about B.C. 100, in his *Pneumatics*, by Agrrippa, a German writer of the sixteenth century, who had studied with great diligence the subject of minerals. Many other writers have studied particular subjects, so that I have no defect to note in this branch, except that later writers should have followed the example of Aristotle, and continued the study of general mechanics with greater diligence, making a special study of those phenomena of which the causes were more than ordinarily obscure, or the effects more than ordinarily great.

Ellis remarks that Bacon makes no mention of Archimedes, the greatest mechanical philosopher of antiquity. Indeed he seems not to have been acquainted with his writings, cp. p 185, n. 10. He also remarks that with contemporary scientific writers Bacon seldom seems to be acquainted. We need not therefore be astonished at his making no mention of Stevinus, Galileo, Guldinus, or Ghetaldus. Stevinus, according to Whewell, wrote on the *principles of equilibrium*. He established the fundamental property of the *inclined plane*. He has stated the *triangle of forces* which includes the principle of the *composition of statical forces*. He had a share in the rediscovery of the *laws of the equilibrium of fluids*, and has explained the *hydrostatic paradox*. Ghetaldus is the author of the method of finding specific gravities. The mechanical and astronomical researches of Galileo are more generally known.

²⁰ *There can hardly, &c.*, see p. 175, n. 58. It is evident from the foregoing note that Bacon was ignorant of much that Mechanical Philosophy was effecting. Mr. Kitchin remarks, in *Nov. Org.* i., 5, that "Bacon's remarks were being falsified at the time he wrote—Mechanics had produced fly-clocks, telescopes, and other useful contrivances." The student will notice in what a very wide sense Bacon uses the term Mechanic. It includes the production of any effect whatever, by means of what he calls its material and efficient causes. For instance, the production of artificial marble or diamonds belongs to Mechanics. In fact Mechanic and Magic include every practical application of knowledge.

²¹ *By the fortune and essays of experiments*, by mere chance and tentative experiments, made without theory or method.

²² After the words '*physical causes*,' Bacon adds in the *De Aug.*, "but only by the discovery of formal causes."

metaphysic deficient, it must follow that we do the like of natural magic, which hath relation thereunto. For as for the natural magic¹⁸ whereof now there is mention in books, containing certain credulous and superstitious conceits and observations of sympathies and antipathies, and hidden proprieties,¹⁹ and some frivolous experiments, strange rather by disquisement than in themselves, it is as far differing in truth of nature²⁰ from such a knowledge as we require, as the story of King Arthur of Britain,²¹ or Hugh of Bourdeaux, differs from Cæsar's²² Commentaries in truth of story. For it is manifest that Cæsar did greater things *in reality* than those imaginary heroes were feigned to do. But he did them not in that fabulous manner. Of this kind of learning the fable of Ixion²³ was a figure, who designed to enjoy Juno, the goddess of power; and instead of her had copulation with a cloud, of which mixture were begotten

¹⁸ *The natural magic, &c.*, with this passage cp. p. 51.

¹⁹ *Sympathies and antipathies, and hidden proprieties*, Bacon himself thought that many phenomena were to be explained by affinities and repugnances between substances, and the parts of substances, cp. "Strife and friendship in nature are the spurs of motions and the keys of works. Hence are derived the union and repulsion of bodies, the mixture and separation of parts," &c. What he complains of is that men have fallen into an indolent habit of explaining by sympathy and antipathy phenomena which sympathy and antipathy will not account for, because they are too idle to seek for their real causes. "They are always talking of the magnet, and the sympathy of gold with quicksilver, and a few other things of the kind, and appealing to them as sureties to accredit other things which are not bound by any similar contract." He makes the same complaint about the explanation of phenomena by 'secret proprieties.' He says, for instance, that, in the case of any disease, 'that will do good in one body which will not do good in another, according to the correspondence the medicine hath to the individual body.' What he complains of is 'the easy passing over of the causes of things, by ascribing them to secret and hidden virtues and proprieties: for this hath arrested and laid asleep all true inquiry and indications.' See *Ellis and Spedding's Ed.*, Vol. 2, p. 671, and Vol. 5, p. 203. Cp. *Nov. Org.* ii., 50. For *proprieties*, see p. 139, n. 51.

²⁰ *In truth of nature*, in correctly representing the actual processes of nature.

²¹ The story of King Arthur of Britain was compiled from the French legends by Sir Thomas Malory about the year 1470, and was first printed by Caxton in 1485. Sir John Bourchier, Lord Berners, also translated from the French the romance of Sir Hugh of Bordeaux, a knight of the age of Charlemagne; it was printed about 1540. W.

²² *Cæsar's Commentaries*, p. 90, l. 5, sq. *Story*, p. 119, n. 7.

²³ *Ixion*, p. 21, n. 4.

centaurs and chimeras. So whosoever shall entertain high and vaporous²⁴ imaginations, instead of a laborious and sober inquiry of truth, shall beget hopes and beliefs of strange and impossible shapes. And therefore we may note in these sciences which hold so much²⁵ of imagination and belief, as this degenerate natural magic, alchemy, astrology,²⁶ and the like, that in their propositions the description of the means is ever more monstrous than the pretence²⁷ or end. For it is a thing more probable, that he that knoweth well the natures²⁸ of weight, of colour, of pliant and fragile in respect of the hammer, of volatile and fixed in respect of the fire, and the rest, may superinduce upon some metal the nature and form of gold by such mechanique²⁹ as longeth to the production of the natures afore rehearsed, than that some grains of the medicine³⁰ projected should in a few moments of

²⁴ *Vaporous*, p. 21, n. 5. Bacon says in the *De Aug.* that "the effect of the present degenerate and worthless magic upon men is like the effect of soporific drugs, which bring on sleep, and cause pleasant dreams whilst the sleep lasts. For in the first place it throws the human mind into a slumber by harping on specific properties, and occult virtues sent down as it were from heaven and to be learnt only in whispered traditions. The consequence is that men rest satisfied with such idle and credulous opinions, and do not bestir themselves to the discovery of true causes. In the next place it fills the mind with a number of pleasing conceits, which are no better than dreams."

²⁵ Which hold so much &c., cp. p. 51, l. 4. For the expression 'hold of' cp. p. 3, n. 9.

²⁶ *Astrology*, see p. 51, n. 22, and p. 170, n. 21.

²⁷ *Pretence*, cp. 'pretendeth,' p. 52, n. 24.

²⁸ *The natures*, p. 170, l. 2, cp. below l. II.

²⁹ *Mechanique*, mechanism. The production of gold by the superinduction of its various qualities upon some material is Bacon's favourite instance of the practical application of the knowledge of 'forms.' See p. 173, n. 43, and p. 175, n. 58. Elsewhere he says, "gold has these natures: greatness of weight, closeness of parts, fixation, pliancy or softness, immunity from rust, colour or tincture of yellow. Therefore the sure way, though most about, to make gold, is to know the causes of the several natures before rehearsed, and the axioms concerning the same. For if a man can make a metal that hath all these properties, let men dispute whether it be gold or no." See Ellis and Spedding's Ed., Vol ii., p. 448, sq., where Bacon describes an experiment for transmuting silver into gold. See Mill's *Logic*, Bk. 5, ch. 3, § 7. The possibility of transmuting metals is not now denied. *Longeth*, belongs.

³⁰ *The medicine*, the elixir of the alchemists, by which they pretended that they could transmute prepared metal into gold. Cp.

'How much unlike art thou Mark Antony !

Yet, coming from him, that great *medicine* hath

With his tinct gilded thee.' *Antony and Cleopatra*, i., 5, 35.

time turn a sea of quicksilver or other material into gold. So³¹ it is more probable that he that knoweth the nature of arefaction,³² the nature of assimilation of nourishment³³ to the thing nourished, the manner of increase and clearing of spirits,³⁴ the manner of the depreda-

And, 'I will make admirable use i' *the projection of my medicine* upon this lump of copper.' B. Jonson's *Every Man out of his Humour*, I. 2.

The student should observe that alchemists did not confine their attention to producing gold, but were busied with chemical experiments generally.

³¹ Bacon believed that in every tangible substance is enclosed a body of such extreme rarity as to be imperceptible except by its effects, to which he gives the name of *spirit*. In living bodies there are two spirits—'the mortuary spirit,' as he calls it, which resides also in inorganic bodies, and to which I have just alluded, and 'the vital spirit.' This latter is a subtle compound of air and fire: it is diffused throughout the body, and the phenomena of life are to be referred to it. So long as it remains in the body, life is preserved: but if it escapes from the body, death supervenes. Those, therefore, who wish for long life must keep their bodies in such a state of health and strength that 'the vital spirit' cannot force its way out. But the condition of our bodies is determined by the action of 'the mortuary spirit' which is enclosed in them. It is, therefore, as Bacon says in the text, of primary importance that we should learn the laws of the action of this 'mortuary spirit,' and in what ways its action may be controlled or modified.

Prof. Fowler points out that the idea has come down from the fetishistic days, when men looked upon all things as possessed of a soul or spirit like their own, and regarded that soul as a material, though invisible substance.

Bacon's view of '*spirit*' is explained at great length in his treatise, relating to the prolongation of human life. Ellis and Spedding's Ed., Vol. 5, p. 213, sq. A number of experiments in medicine are given in Bacon's *Natural History*: see *ibid.*, p. 355, sq.

³² *Arefaction*, Bacon explains elsewhere that arefaction is due to the contraction of the solid parts of bodies, when 'spirit' has escaped from them. They contract, he says, either to avoid a vacuum, or because homogeneous things naturally unite. We see instances of the process in things which grow dry from age, and in drier bodies, such as bricks, from which the moisture is drawn out by fire.

³³ *Assimilation of nourishment*, The student will find Bacon's views 'touching the particulars which yield best and easiest and plentifullest nourishment, and the best means of conveying and converting the nourishment' explained in his *Natural History*. Ellis and Spedding's Ed., Vol. 2, pp. 358—365.

³⁴ *Increase and clearing of spirits*, Bacon explains elsewhere that, if the body is to be preserved, the 'mortuary spirit must be dense, and not rare: it must retain a constant and not a violent heat: it must exist in such amount only as is necessary for performing the functions of life: and its motion must be regular, not fitful or uneven. He then prescribes the diet and mode of life

tions^{ss} which spirits make upon the humours and solid parts, shall by ambagesst of diets, bathings, anointings, medicines, motions, and the like, prolong life,^{su} or restore some degree of youth or vivacity, than that it can be done with the use of a few drops or scruples of a liquor or receipt. To conclude therefore, the true natural magic, which is that great liberty and latitude of operation which dependeth upon the

necessary to bring the 'spirit' into the proper state. Ellis and Spedding's Ed., Vol. 2, p. 162, sq.

^{ss} *Depredations, &c.* The 'mortuary spirit' is possessed with a constant desire to multiply itself: consequently, it is always preying upon the body. The humours, i.e. the juices of the body are most akin to spirit, and therefore first fall a prey to spirit, and are transformed into it. But the spirit will, if left to itself, break up, liquefy, and permeate even the more solid parts of the body. Ellis and Spedding's Ed., Vol. 2, p. 216, sq.

st *Ambages*, p. 161, n. 82.

^{su} Bacon, in his treatise touching the prolongation of life, mentions a number of receipts for prolonging life. Such were potable gold, gold powdered in wine, or gold leaf: pearls in fine powder, or in solutions: emeralds and other gems: bezoar stone, and a variety of herbs. Bacon himself was by no means free from the ridiculous fancies of his age. I quote from Prof Fowler certain absurdities which Bacon countenanced—The bloodstone is good for them that bleed at the nose—The heart of an ape, worn near the heart, comforteth the heart and increaseth audacity, and, applied to the neck or head, helpeth the wit, and is good for the falling sickness—There be divers sorts of bracelets fit to comfort the spirits, and they be of three intentions, refrigerant, corroborant, and aperient, &c. At the same time it is only fair to remember that Bacon seems to have regretted the publication of the treatise in which these statements are made.

Descartes also speculated on the possibility of prolonging human life. In one of his letters he writes, 'I have never been so careful to preserve myself as now; and whereas I formerly thought that death could not deprive me of more than thirty or forty years, it cannot now surprise me without robbing me of the hope of at least a century. For I think I can see very evidently that if we merely avoid certain faults which we ordinarily commit in the regimen of our life, we might without any other invention arrive at a far longer and happier old age than we do at present. But as I require much time and many experiences to examine all that belongs to the subject, I am now working at an *Abridgment of Medicine*, which I take partly from books, partly from my reasoning. I hope by this means to obtain some delay from Nature, and so pursue my designs better in the course of years.'—*Mahaffy's Descartes*, p. 80.

It is curious that Bacon thought that we can prolong life by other means than those which we can adopt for preserving health; and in fact that those things which prolong life may be injurious to health, while things which are good for health may shorten life.

knowledge of forms, I may report deficient, as the relative thereof^{ss} is. To which part, if we be serious and incline not to vanities and plausible discourse, besides the deriving and deducing the operations themselves from metaphysic, there are pertinent two points of much

Inventory of the estate of purpose, the one by way of preparation,st the other by way of caution. The first is, that there be made a *man*.

kalender, resembling an inventory of the estate^{su} of man, containing all the inventions (being the works or fruits of nature or art) which are now extant, and whereof man is already possessed; out of which doth naturally result a note, what things are yet held impossible, or not invented: which kalender will be the more artificial^{sv} and serviceable, if to every reputed impossibility you add what thing is extant which cometh the nearest in degree to that impossibility; to the end that^{sw} by these optatives and potentials man's inquiry may be the more awake in deducing direction of works^{sx} from the speculation of causes. And secondly, that those experiments be not only esteemed which have an immediate and present use, but those principally which are of most universal consequence for invention of other experiments, and those which give most light^{sy} to the invention

^{ss} *The relative thereof*, viz., the part of metaphysic which deals with the knowledge of forms. Cp. p. 188, ll. 1—2.

st *By way of preparation*, This is explained in the Latin, 'to the end that a man who is girding himself for new discoveries may not waste his labour upon things that are already known.' *Caution*, i.e. not to attempt what is impossible.

^{su} *Estate*, property.

^{sv} *More artificial*, constructed on a better principle. We use the word now as opposed to '*real*'.

^{sw} *To the end that*, &c. Bacon says in the *De Aug.* that 'the reputed impossibility of making a discovery will sharpen men's efforts to make it, while the knowledge of the various approaches that have been made to it will, to a certain extent, guide them in their attempts.'

^{sx} *Direction of works*, i.e. the manner of practically applying the knowledge of causes to the production of effects. Cp. p. 162, l. 11, sq.

^{sy} *Which give most light*, &c. Bacon frequently insists on the value of what he calls 'light-bearing experiments,' i.e. discoveries which may *ultimately* lead to a great addition to the stock of human comforts, though at first sight they may seem to have no practical value. The first discoverers of electricity did not foresee its application to telegraphy. For the mariner's needle he substitutes in the *De Aug.* the artificial congelation of water by snow and salt. He regards this experiment as of great importance because it reveals the secret process of condensation. Hitherto men have not known how to

of causes. For the invention of the mariner's needle, which giveth the direction, is of no less benefit for navigation than the invention of the sails which give the motion.

4. Thus have I passed through natural philosophy and the deficiencies thereof; wherein if I have differed from the ancient and received doctrines and thereby shall move contradiction, for my part, as I affect not⁴⁵ to dissent, so I purpose not to contend. If it be truth,

As we sing, the woods answer;

the voice of nature will consent, whether the voice of man do or no. And⁴⁶ as Alexander Borgia was wont to say of the expedition of the French for Naples, that they came with chalk in their hands to mark up their lodgings, and not with weapons to fight; so I like better that entry of truth which cometh peaceably with chalk to mark up those minds which are capable to lodge and harbour it, than that which cometh with pugnacity and contention.

5. But there remaineth a division of natural philosophy according to the report of the inquiry, and nothing⁴⁷ concerning the matter or subject: and that is positive and considerative; when the inquiry reporteth either an assertion or a doubt. These doubts or *non liquets*⁴⁸ are of two sorts, particular and total.⁴⁹ For the first, we see a good example thereof in Aristotle's Problems, which deserved to have had a better continuance⁵⁰; but so nevertheless as there is one

condense. They have a ready instrument of *rarefaction* in fire. The task of discoverers, he says, will be much shortened if a separate catalogue be made of these 'light-bearing experiments.'

⁴⁵ *Affect not*, am not anxious. We use the word now in the sense of 'to pretend.'

⁴⁶ This expedition of the French under Charles VIII. was made in 1494. Bacon often applies this saying of Pope Alexander VI. In the *Nov. Org.*, 1, 35, he says that controversy is useless, since the differences between himself and others are so fundamental as to leave no common ground for controversy.

⁴⁷ *Nothing*, i.e. not at all.

⁴⁸ *Non liquets*, a legal formula meaning 'not proved.'

⁴⁹ *Particular and total*, the register of uncertainties about particular things is, he says in the *De Aug.*, an appendix to the third branch of physic, p. 169, l. 6, sq. By 'doubts total,' he means the various theories which are or have been held as to 'the contexture and configuration of things,' and 'the principles or originals of things,' p. 169, l. 4, sq. and p. 195, l. 5, sq. The list of these 'doubts total' is an appendix to the first two branches of physic.

⁵⁰ *To have had a better continuance*, i.e. subsequent inquirers should have

point whereof warning is to be given and taken. The registering of doubts hath two excellent uses: the one, that it saveth philosophy from errors and falsehoods; when that which is not fully appearing⁵¹ is not collected into assertion, whereby error might draw error, but reserved in doubt: the other, that the entry of doubts are⁵² as so many suckers or sponges to draw use of knowledge; insomuch as that which, if doubts had not preceded, a man should never have advised,⁵³ but passed it over without note, by the suggestion and solicitation of doubts is made to be attended and applied.⁵⁴ But both these commodities⁵⁵ do scarcely countervail an inconvenience, which will intrude itself if it be not debarred; which is, that when a doubt is once received, men labour rather how to keep it a doubt still, than how to solve it; and accordingly bend their wits.⁵⁶ Of this we see the familiar example in lawyers and scholars, both which, if they have once admitted a doubt, it goeth ever after authorised for a doubt. But that use of wit and knowledge is to be allowed,⁵⁷ which laboureth to make doubtful things certain, and not those which labour to make certain things doubtful. Therefore these kalendars of doubts I commend as excellent things; so that there be this caution used, that when they be thoroughly sifted and brought to resolution, they be from thenceforth omitted, decarded,⁵⁸ and not continued to cherish and encourage men in doubting. To which kalender of doubts or problems, I advise be annexed another

*Continuation
of problems in
nature.*

laboured to complete the work. The expression 'But so nevertheless as,' &c., is equivalent to 'But, though I commend the registering of doubts, still the following caution must be observed.'

⁵¹ *Is not fully appearing*, i.e. is not clearly proved. With the whole of this passage, cp. p. 50, § 10 and p. 61, § 9.

⁵² *Are, obs.* the plural verb. *Use, increase.*

⁵³ *Advised*, p. 96, n. 34.

⁵⁴ *Attended and applied*, attended to and carefully considered.

⁵⁵ *Commodities*, p. 112, n. 56.

⁵⁶ *Accordingly bend their wits*, devote all their ingenuity to that end. Bacon says in the *De Aug.* that when once a question is raised, partisans on either side at once spring up, and the dispute is handed on to the next generation.

⁵⁷ *Allowed*, p. 27, n. 47.

⁵⁸ *Decarded*, removed from the list of doubts. W should say '*discarded*'

history, such as pass in speech and conceit,⁶⁹ and are nevertheless apparently⁷⁰ detected and convicted of untruth; that man's knowledge be not weakened nor imbased⁷¹ by such dross and vanity. As for the doubts or *non liquets*⁷² general or in total,⁷³ I understand those differences of opinions touching the principles⁷⁴ of nature, and the fundamental points of the same, which have caused the diversity of sects, schools, and philosophies, as that of Empedocles,⁷⁵ Pythagoras, Democritus, Parmenides, and the rest. For although Aristotle,⁷⁶ as though he had been of the race of Ottomans thought he could not reign except the first thing he did he killed all his brethren; yet to those that seek truth and not magistrality,⁷⁷ it cannot but seem a matter of great profit, to see before them the several opinions touching the foundations of nature. Not for any exact truth that can be expected in those theories; for as the same phenomena⁷⁸ in astronomy are satisfied by the received astronomy of the diurnal motion,⁷⁹ and the proper motions of the planets, with their eccentricities and epicycles,⁸⁰

Catalogue of
errors current
in history of
nature.

⁶⁹ *Conceit*, opinion. With this passage cp. p. 121, n. 27.

⁷⁰ *Apparently*, without any doubt. We use the word now to express either 'probably,' or 'not in reality.'

⁷¹ *Imbased*, p. 54, n. 37.

⁷² *Non liquets*, p. 193, n. 48.

⁷³ *General or in total*, p. 193, n. 49.

⁷⁴ *The principles*, see p. 169, n. 21.

⁷⁵ *Empedocles*, of Agrigentum, born not long after 500 B.C., explained the universe by the action of the two conflicting principles of love and hate on the four elements, earth, air, fire, and water. *Pythagoras*, p. 183, n. 90. *Democritus*, p. 53, n. 36. *Parmenides*, p. 175, n. 54.

⁷⁶ *Although Aristotle, &c.*, see p. 163, n. 96. Ellis says that Bacon was probably alluding to a recent instance of this practice. In 1595, Mahomet III., on becoming Sultan, put to death nineteen of his brothers, and ten or twelve women supposed to be with child by his father. The practice in question was established as a fundamental law of the state by Mahomet II.

⁷⁷ *Magistrality*, the having one's teaching received with the same unquestioning belief with which a boy receives the teaching of his master. Cp. p. 54, l. 9, sq.

⁷⁸ *The same phenomena, &c.* See p. 58, n. 64, and p. 170, n. 21. *Are satisfied*, are explained.

⁷⁹ *Of the diurnal motion*, viz., of the heaven, not of the earth. The 'received astronomy' is the Ptolemaic system.

⁸⁰ *Eccentric and epicycles* were invented to account for the apparently irregular motion of the planets, including the sun and moon. They revolved in their own proper orbit, but the earth was 'eccentric,' i.e. not in the centre

and likewise by the theory of Copernicus who supposed the earth to move, and the calculations are indifferently⁷¹ agreeable to both, so the ordinary face and view of experience⁷² is many times satisfied by several theories and philosophies; whereas to find the real truth requireth another manner of severity⁷³ and attention. For as Aristotle saith, that children at the first will call every woman mother, but afterward they come to distinguish according to truth; so experience, if it be in childhood, will call every philosophy mother, but when it cometh to ripeness it will discern the true mother. So as

Concerning ancient philosophies. in the mean time it is good to see the several glosses and opinions upon nature, whereof it may be every one in some one point hath seen clearer than his fellows, therefore I wish some collection to be made painfully⁷⁴ and understandingly concerning *ancient philosophies*, out of all the possible light⁷⁵ which remaineth to us of them: which kind of work I find deficient. But here I must give warning, that it be done distinctly and severedly⁷⁶; the philosophies of every one throughout by themselves, and not by titles packed and faggoted up together, as hath been done by Plutarch.⁷⁷ For it is the harmony⁷⁸ of a philosophy in itself which giveth it light

of the circle which they described. An 'epicycle' was a small circle which a planet described, but the centre of which itself described a larger circle of which the earth was the centre. See Whewell's *History of the Inductive Sciences*, Vol. I., Bk. 3, ch. 3.

⁷¹ *Indifferently*, equally. Ellis remarks, Vol. 3, p. 726, that, if Bacon had been acquainted with the discoveries of Kepler, he would have abandoned the view taken in the text.

⁷² *Ordinary face and view of experience*, i.e. phenomena as they appear on a casual observation. Bacon means to say that so long as we are only imperfectly acquainted with phenomena, various and even conflicting desorptions will seem to account for them. Cp. Mill's *Logic*, Bk. 3, ch. 2, § 4.

⁷³ *Severity*, Cp. 'severe,' p. 178, n. 63.

⁷⁴ *Painfully*, carefully.

⁷⁵ *Out of all the possible light*, viz., as he explains in the Latin, 'from the lives of ancient philosophers, from Plutarch's treatises on their doctrines, from quotations from them in Plato, from the refutations of them to be found in Aristotle's works, (cp. p. 163, l. 7, sq.) and from scattered notices of them in other writers, whether ecclesiastical or secular.'

⁷⁶ *Severedly*, separately: each system by itself.

⁷⁷ *Plutarch*, p. 84, n. 38, Bacon wants, not an account of the opinions of philosophers on special points, such as was written by Plutarch, but an exposition of the system of each individual philosopher.

⁷⁸ *It is the harmony, &c.* Cp. p. 46, l. 4.

and credence ; whereas if it be singled⁷⁸ and broken, it will seem more foreign⁷⁹ and dissonant. For as when I read in Tacitus⁸⁰ the actions of Nero or Claudius, with circumstances of times, inducements, and occasions, I find them not so strange ; but when I read them in Suetonius⁸¹ Tranquillus, gathered into titles and bundles and not in order of time, they seem more monstrous and incredible : so is it of any philosophy reported entire, and dismembered by articles. Neither do I exclude opinions of latter times to be likewise represented in this kalendar of sects of philosophy, as that of Theophrastus Paracelsus,⁸² eloquently reduced into an harmony by the pen of Severinus⁸³ the Dane : and that of Tilesius, and his scholar Donius,

⁷⁸ If it be singled, if parts of it only are given.

⁷⁹ Foreign, strange. Cp. xvii. 10.

⁸⁰ Tacitus, p. 130, n. 88.

⁸¹ Suetonius, A.D. 75—160, wrote biographies of the Roman Emperors. Instead of giving a chronological account of events, he divides each biography into certain sections, such as the Emperor's virtues and vices, his mode of life, personal habits, &c.

⁸² Paracelsus, a fanciful philosopher of the sixteenth century. His chief study was medicine, and his pharmaceutical knowledge was considerable. He founded a new theory of animal magnetism, on which he based his system of medicine. The basis of this system was the sympathetic cure of diseases. His theory was in a great measure mystical, resting on the emanation of all things from a primal being, and on the emanations of the stars and the elementary bodies. He taught that there is in man a life which emanates from the stars, and which remains in connection with them, and attracts their strength to it like a magnet. Man is taken out of the four elements, and is nourished by them, not merely palpably through the stomach, but also imperceptibly, through the magnetic power which resides in all nature, and by which every individual draws its specific nourishment to itself. The sun and stars attract from us to themselves, and we again from them to us ; and these secret influences have their positive office in the maintenance of the body. See p. 157, n. 68.

⁸³ Severinus, a Danish physician, who wrote several treatises on medical and philosophical subjects, in which he followed the opinions of Paracelsus. He died in the year 1602. E. Telesius's principle work was his treatise 'On the Nature of Things' which was published entire in the year 1586. Bacon derived more ideas from him than from any other of the "novelists," as he calls the philosophical innovators, and has written a separate treatise on three systems of philosophy, of which his is one. E. Telesius was an Italian, and was born at Cosenza, in the kingdom of Naples, in 1508. Bacon admired him because he attacked the Aristotelian philosophy and the *a priori* method of interpreting nature.

being as a pastoral philosophy,⁸⁴ full of sense, but of no great depth; and that of Fracastorius,⁸⁵ who, though he pretended not to make any new philosophy, yet⁸⁶ did use the absoluteness of his own sense upon the old; and that of Gilbertus⁸⁷ our countryman who revived, with some alterations and demonstrations, the opinions of Xenophanes⁸⁸; and any other worthy to be admitted.

6. Thus⁸⁹ have we now dealt with two of the three beams of man's knowledge; that is *the ray direct* which is referred to nature, *the refracted ray* which is referred to God, and cannot report truly because of the inequality of the medium. There resteth *the reflex ray* whereby man beholdeith and contemplateth himself.

IX. Pp. 198—205. Bacon now proceeds to consider human philosophy, which is the most interesting branch of knowledge to man. But although "to know ourselves" is *for us* the end of all knowledge, yet we must bear in mind that human philosophy is but a branch of universal knowledge. And generally, in classifying the sciences, we must remember that, though they are distinguished, they are not disconnected. No branch of knowledge can flourish, if cut off from the parent stem.

Human philosophy is divided into two branches, simple or particular, and conjugate or civil. The first deals with man as an individual, and will comprehend the science of body, and the science of mind: the second deals with men in society.

But prior to these special sciences there should be a science of Human Nature as a whole, dealing, not with the conditions of human life, but with the connection of body and mind. This science again will be divided into two branches. The first will consider what light can be thrown upon the state of the mind by the expression of the countenance and by gestures, and upon the

⁸⁴ *A pastoral philosophy*, one which contemplates the world placidly and at its ease. W. Cp. Bacon's remarks on the pastoral life, above, p. 67, l. 21, sq.

⁸⁵ *Fracastorius*, born at Verona, 1483.

⁸⁶ Yet did use, &c., i.e. he criticised the old philosophy independently.

⁸⁷ *Gilbertus*, p. 60, n. 75.

⁸⁸ *Xenophanes*, of Colophon, in Asia Minor, born B.C. 569, was an Eleatic. Bacon is probably referring to the points of similarity between some of the astronomical theories of Xenophanes and Gilbert. See Ellis and Spedding's Ed., Vol. v., p. 503, sq. In the *De Aug.* he has substituted Philolaus for Xenophanes.

⁸⁹ We see nature directly: we cannot see God face to face, but only as he is reflected in his works, and his image is therefore imperfect; (for the metaphor cp. p. 48, l. 20, and xiv. 9) the knowledge of ourselves is got from introspection. Cp. p. 161, l. 11.

state of the body by the state of the mind. Men have strangely neglected the inferences which may be drawn as to a man's thoughts from his gestures. Gestures speak as plainly as words. The second branch of this general science will consider how far, and in what ways the body can influence the mind, and the mind the body. The influence of body on mind has not been altogether neglected by physicians, but men's ideas on the subject have often been superstitious. The fact, however, of abstinence being enjoined by the Christian religion shows that mind is affected by body. There is nothing derogatory to the mind in this: it is not necessarily material because it is affected by matter. The fact that health of body depends on health of mind is generally recognised: but the subject is a very difficult one. Before this science of nature can be perfected it is necessary that we should know in what parts of the body the various mental faculties reside.

IX. I. We come therefore now to that knowledge whereunto the ancient oracle⁹⁰ directeth us, which is the knowledge of ourselves; which deserveth the more accurate handling, by how much it toucheth us more nearly. This knowledge, as it is the end and term⁹¹ of natural philosophy in the intention of man, so notwithstanding it is but a portion of natural philosophy in the continent of nature.⁹² And generally let this be a rule, that all partitions of knowledges be accepted rather for lines and veins than for sections and separations; and that the continuance and entireness of knowledge be preserved. For the contrary hereof hath made particular sciences to become barren, shallow, and erroneous, while they have not been nourished and maintained from the common fountain. So we see Cicero the orator complained of Socrates and his school, that he was the first that separated philosophy and rhetoric⁹³; whereupon rhetoric became an empty and verbal art. So we may see that the opinion of Copernicus⁹⁴ touching the rotation of the earth, which astronomy itself cannot correct, because it is not repugnant to any of the *phainomena*, yet natural philosophy may correct. So we see also that the science of medicine if it be destituted and forsaken by natural philosophy, it⁹⁵ is

⁹⁰ *The ancient oracle*, The sentence "Know thyself" is said to have been engraved over the entrance to Apollo's temple at Delphi.

⁹¹ *The term*, the limit. This is the literal meaning of the word.

⁹² With this passage cp. p. 110, § 8, and p. 151, l. 16, sq.

⁹³ *Separated philosophy and rhetoric*, Cicero's complaint is that orators ceased to acquire the knowledge of all things pertaining to morals, to human life and virtue, and to public affairs. *De Or.* 3, 19. Cp. Bacon's *Interpretation of Nature*. Ellis and Spedding's Ed., Vol. 3, p. 228.

⁹⁴ *The opinion of Copernicus*, cp. p. 196, l. 1, and p. 58, n. 64.

⁹⁵ *It*, redundant. Cp. p. 23, l. 7. With this passage cp. p. 17, § 3.

not much better than an empirical practice. With this reservation therefore we proceed to human philosophy or humanity, which hath two parts : the one considereth man segregate or distributively ; the other congregate, or in society. So as human philosophy is either simple and particular, or conjugate and civil. Humanity particular consisteth of the same parts whereof man consisteth ; that is, of knowledges which respect the body, and of knowledges that respect the mind. But before we distribute so far, it is good to constitute. For I do take the consideration in general, and at large, of human nature to be fit to be emancipate⁹⁶ and made a knowledge by itself : not so much in regard of those delightful and elegant discourses which have been made of the dignity of man, of his miseries, of his state and life, and the like adjuncts of his common and undivided nature ; but chiefly in regard of the knowledge concerning the sympathies and concordances⁹⁷ between the mind and body, which being mixed cannot be properly assigned to the sciences of either.

2. This knowledge hath two branches : for as all leagues and amities consist of mutual intelligence and mutual offices, so this league of mind and body hath these two parts ; how the one discloseth the other, and how the one worketh upon the other; discovery and impression. The former of these⁹⁸ hath begotten two arts, both of prediction or prenotion⁹⁹ ; whereof the one is honoured with the inquiry of Aristotle, and the other of Hippocrates.¹ And although they have of later time been used to be coupled with superstitious and

⁹⁶ *Emancipate*, emancipated. Cp. p. 133, n. 11. *Not so much in regard of, &c.* In the *De Aug.* this part is numbered amongst the deficiencies. It should embrace the consideration of the *miseries* and *excellencies* of man. The subject of man's *miseries* has been treated at great length, and with great elegance both by philosophers and theologians : and the subject is both an agreeable and a healthy one. But Bacon thinks that it would conduce greatly to produce magnanimity in men, if historical instances of unusual virtue and fortitude, whether mental or bodily, were collected and set forth in one volume. Such a volume would be a record of human triumphs. Bacon relates several anecdotes of men preserving their equanimity, and showing great endurance under suffering.

⁹⁷ *Concordances*, p. 124, n. 49.

⁹⁸ *The former of these*, viz., the description of the manner in which the state of the mind may be inferred from that of the body, or the state of the body from that of the mind.

⁹⁹ *Prenotion*, foreknowledge.

¹ *Hippocrates*, p. 53, n. 36.

fantastical arts, yet being purged and restored to their true state they have both of them a solid ground^{*} in nature, and a profitable use in life. The first is physiognomy,[†] which discovereth the disposition of the mind by the lineaments of the body. The second is the exposition of natural dreams, which discovereth the state of the body by the imaginations of the mind. In the former of these I note a deficiency. For Aristotle hath very ingeniously and diligently handled the factures of the body,[‡] but not the gestures of the body, which are no less comprehensible by art, and of greater use and advantage. For the lineaments of the body do disclose the disposition and inclination of the mind in general; but the motions of the countenance and parts do not only so, but do further disclose the present humour and state of the mind and will. For as your majesty saith most aptly and elegantly, *As the tongue[§] speaketh to the ear so the gesture speaketh to the eye.* And therefore a number of subtle persons, whose eyes do dwell upon the faces and fashions[¶] of men, do well know the advantage of this observation, as being most part of their ability; neither can it be

*Physiognomy
of the ges-
tures and
movements of
the body.*

* *Ground, foundation.*

† *Physiognomy, notice that the word is used in a much wider sense than at present.*

‡ *The factures of the body, i.e. the constitution of the body when at rest.* The physiognomical method of Aristotle consists chiefly in tracing the resemblances which exist between different kinds of animals and different individuals of the human species. E.

§ *As the tongue, &c., quoted from Bk. 3, of the *Basilicon Doron*, J. S.*

¶ *Fashions, movements. As being most part of their ability, since their skill lies chiefly in interpreting men's looks and movements. Cp. *Essay vi. Bacon*. says in the *De Aug.* that physiognomy, or the interpretation of men's thoughts by means of their looks and gestures, may be raised to a science, since we all laugh, and blush, and weep, and frown much in the same way: and the same is true, speaking generally, of our more subtle movements. Cp. *Bacon's Natural History*, Century viii., 713–722. *Ellis and Spedding's Ed.*, Vol. 2, p. 567.*

This fact of the feelings having a natural expression, which is the same always and everywhere is adduced by modern psychologists as a proof of the connection between physical and psychical states. "Most of our emotions are so closely connected with their expression that they hardly exist if the body remains passive. A man for instance may know that his life is in the extremest peril, and may strongly desire to save it: yet, as Louis XVI. said when surrounded by a fierce mob, "Am I afraid? feel my pulse." So a man may intensely hate another: but until his bodily frame is affected, he cannot be said to be enraged." Darwin, *Expression of the Emotions*, p. 239. The

denied, but that it is a great discovery of dissimulations, and a great direction in business.

3. The latter branch, touching impression,⁷ hath not been collected into art, but hath been handled dispersedly; and it hath the same relation or *antistrophe*⁸ that the former hath. For the consideration is double: either, how and how far the humours and affects⁹ of the body do alter or work upon the mind; or again, how and how far the passions or apprehensions of the mind do alter or work upon the body. The former of these hath been inquired and considered as a part and appendix of medicine, but much more as a part of religion or superstition. For the physician prescribeth cures of the mind in phrenses and melancholy passions; and pretendeth also to exhibit medicines to exhilarate the mind, to confirm the courage, to clarify the wits, to corroborate the memory, and the like: but the scruples and superstitions of diet and other regimen¹⁰ of the body¹¹ in the sect

following remarks of Prof. Bain will serve as a commentary on what Bacon says: "The smile of joy, the pucker'd features in pain, the stare of astonishment, the quivering of fear, the tones and glance of tenderness, the frown of anger—are united in seemingly inseparable association with the states of feeling that they indicate On this uniformity of connexion between feelings and their bodily expression depends our knowledge of each other's mind and character. When any one is pleased, or pained, or loving or angry, unless there is purposed concealment, we are aware of the fact, and can even estimate in any given case the degree of the feeling."—*Mind and Body*, ch. 2.

Bacon says in the *De Aug.* that the basis of a sound *interpretation of natural dreams* is the principle that when an effect is produced by an internal cause, that is generally produced by an external one, then we dream that the external cause is at work. For instance, the feeling of oppression on the stomach is produced both by thick vapour, and by the pressure of an external weight. Accordingly, those who have this feeling dream, with great vividness, that a weight is placed upon them. This dream, if rightly interpreted, shows in what condition their stomach is.

⁷ Impression, see p. 200, l. 21.

⁸ Hath the same relation or *antistrophe*, i.e. is composed of two parts, the relation of which to one another is the same as the relation of physiognomy to the exposition of natural dreams. The chorus in a Greek play moved first from right to left, and then back from left to right. The first movement was called *a strophe*, the second *an antistrophe*, i.e. a corresponding movement in the opposite direction. The influence of the mind upon the body is the *antistrophe* or converse of the influence of the body upon the mind.

⁹ Affects, affections, i.e. the condition.

¹⁰ Other regimen of the body, this includes all bodily observances, such as ablutions, &c. The Pythagoreans, Pythagoras founded a society in lower Italy,

of the Pythagoreans, in the heresy of the Manichees, and in the law of Mahomet, do exceed.¹¹ So likewise the ordinances in the ceremonial law,¹² interdicting the eating of the blood and the fat, distinguishing between beasts clean and unclean for meat, are many and strict. Nay the faith¹³ itself being clear and serene from all clouds of ceremony, yet retaineth the use of fastings, abstinences, and other macerations and humiliations of the body, as things real, and not figurative.¹⁴ The root and life of all which prescripts is (besides the ceremony)¹⁵ the consideration of that dependency which the affections of the mind are submitted unto upon the state and disposition of the body. And if any man of weak judgement do conceive that this suffering of the mind from the body doth either question the immortality, or derogate from the sovereignty of the soul, he may be taught in easy instances, that the infant in the mother's womb is compatible with¹⁶ the mother and yet separable; and the most absolute monarch is sometimes led by his servants and yet without subjection. As for the reciprocal knowledge,¹⁷ which is the operation of the conceits and passions of the mind upon the body, we see all wise physicians, in the

the members of which were bound to obey certain ordinances, amongst which were regulations concerning food. *The Manichees* were an heretical sect of Christians. To the instances here given by Bacon we may add the ritual of the Brahmins.

¹¹ *Do exceed*, exceed the proper limits.

¹² *The ceremonial law*, the Mosaic law.

¹³ *The faith*, the Christian faith.

¹⁴ *As things real and not figurative*, i. e. as things which are really profitable and not merely matters of ritual. For 'figurative' see p. 68, n. 21. *Prescripts*, prescriptions.

¹⁵ *Besides the ceremony*, the Latin adds 'and the exercise of obedience,' cp. p. 68, l. 18.

¹⁶ *Is compatible with*, suffers with: is affected by the condition of. The following are simple instances of the effects of bodily changes on mental states. Our feelings and moods depend upon hunger, repletion, the state of the stomach, pure and impure airs, &c. A healthy man wakens in the morning with a flush of spirits and energy: his first meal confirms and reinforces the state. The mental powers and susceptibilities are then at the maximum; as the nutrition is used up in the system, they gradually fade, but may be renewed once and again by refreshment and brief remission of toil. The memory rises and falls with the bodily condition: being vigorous in our fresh moments and feeble when we are fatigued and exhausted.—*Bain's Mind and Body*, ch. 2.

¹⁷ *The reciprocal knowledge*, see p. 202, n. 8.

prescription of their regiments¹⁸ to their patients do ever consider *mental symptoms* as of great force to further or hinder remedies or recoveries: and more specially it is an inquiry of great depth and worth concerning imagination,¹⁹ how and how far it altereth the body proper of the imaginant. For although it hath a manifest power to hurt, it followeth not ~~it~~ hath the same degree of power to help. No more than a man can conclude, that because there be pestilent airs, able suddenly to kill a man in health, therefore there should be sovereign airs able suddenly to cure a man in sickness. But the inquisition of this part is of great use, though it needeth, as Socrates said, *a Delian diver*,²⁰ being difficult and profound. But unto all this knowledge of the common bond, of the concordances between the mind and the body, that part of inquiry is most necessary, which considereth of the seats and domiciles²¹ which the several faculties of the mind do take and occupate in the organs of the body; which knowledge hath been attempted, and is controverted, and deserveth to be much better inquired. For the opinion of Plato, who placed the understanding in the brain, animosity (which he did unfitly call anger, having a greater mixture with pride)²² in the heart, and concupiscence or sensuality

¹⁸ *Regiments*, diet.

¹⁹ *Imagination*, This is explained more clearly in the *De Aug.* thus—"How far an imagination, or an idea so firmly fixed in the mind as almost to have become a belief, has power to change the bodily condition of the man in whose mind it is." This subject is dealt with by Bacon in his *Natural History*, Century x., 901, sq. *Ellis and Spedding's Ed.*, Vol. 2, p. 640., sq., where he considers the influence of a man's imagination both upon himself and others. He says that confidence of his own ability to do a thing, or belief in the efficacy of a charm which he carries are likely to make man succeed because they make him more industrious. On the other hand, a man who is oppressed by diffidence and apprehension is not likely to succeed. The influence of the imagination upon others, or fascination, is discussed below, xi. 3. The following are simple instances of the influence of mental upon bodily states. Fear paralyzes the digestion. Protracted and severe mental labour brings on disease of the bodily organs. Happy outward circumstances are favourable to health and longevity. Violent emotions are among the causes of paralysis. Long and severe mental exertion, and sudden mental shocks will cause insanity.—*Bain's Mind and Body*, ch. 2.

²⁰ *It needeth a Delian diver*, This was said by Socrates of a treatise of Heraclitus. Delos is one of the islands in the *Aegean*.

²¹ *The seats and domiciles*, cp. p. 142, n. 78.

²² *Having a greater mixture with pride*, i.e. whereas it is in reality more nearly allied to pride. For this theory of Plato, see his *Timæus*.

in the liver, deserveth not to be despised; but much less to be ~~allowed~~. So then we have constituted (as in our own wish and advice) the inquiry touching human nature entire, as a just portion of knowledge to be handled apart.

X. Pp. 205—219. Having constituted a general science of human nature, consisting of physiognomy, the exposition of natural dreams, and the theory of impression, Bacon now proceeds to the consideration of the first branch of 'humanity particular,' viz., the knowledge concerning man's body. This comprises medicine, cosmetic, athletic, and arts voluptuary, corresponding respectively to health, beauty, strength, and pleasure, which are the four desirable states of body. In the science of medicine much may be done, though mistakes are easily made. It requires, therefore, careful attention. Without going so far as Paracelsus, who said that every substance in nature was represented in man's body, we must still allow that the substance of the human body is extremely composite. The soul, on the other hand, is an extremely simple substance; and the frequent disturbances to which it is subject spring from its being placed in a substance so alien in nature from its own. Owing to its composite nature the body is easily disordered. Owing to the great variety of diseases medicine is mere guess-work, and therefore full of impostures. Another cause of the backward state of medicine is that physicians are judged simply by the *result* of their treatment: and since a mere empiric may, by accident, cure a patient, quacks and impostors are often preferred to skilled physicians. The ancients were quite right when they made the god of medicine the brother of the queen of magicians. Since the physician gets no credit for his skill, he naturally does not seek to perfect himself in his profession. The powers of the human mind, however, are so great that by due industry physicians might learn to conquer all diseases: and that the curing of disease is a noble object is attested as well by ancient mythology as by the authority of Christ.

But little progress has been made in the study of the origin, course, and cure of disease. The method, instituted by Hippocrates, of keeping a record of special cases has been unwisely discontinued. Comparative Anatomy has been neglected: yet without it an intimate knowledge of the human body is impossible. Men should practise vivisection, in order to become acquainted with those processes which cease with death. The situations of the different humours in the body should be studied; and extraordinary diseases of all kinds should be classified according to their symptoms and results. By giving up certain cases as hopeless, physicians have killed as many, if not more men than tyrants have. They have also neglected the means of mitigating the pains of death. Instead of appropriating special prescriptions for special diseases, they try capricious and arbitrary modes of treatment: hence their frequent failures. The medicines which are sold ready-made in shops are not prepared to meet special cases. Physicians have not even tried to compound medicines resembling natural medicinal waters. An accurate study of the progress of each disease is what is required, and a scientific adaptation of the treatment to variations in the symptoms.

As for cosmetic, the adorning of the person is mere effeminacy; but "cleanliness is next to godliness," and is a duty which man owes to society and to himself.

Athletic includes every thing calculated to produce bodily activity and endurance. It is not necessary to dwell upon these. It is sufficient that a man should possess moderate activity and endurance. Extraordinary skill in these matters is no longer valued, except as a means of livelihood.

With regard to arts voluptuary, an excessive devotion to pleasure is a sign of a degenerate age, and Bacon regrets to notice it in his own. But recreation is a part of education.

The student should notice the place which Bacon assigns to medicine. He places it among the moral sciences. We should rank it with the physical sciences.

X. I. The knowledge that concerneth man's body is divided as the good²³ of man's body is divided unto which it referreth. The good of man's body is of four kinds, health, beauty, strength, and pleasure: so the knowledges are medicine, or art of cure: art of decoration, which is called cosmetic²⁴; art of activity, which is called athletic; and art voluptuary, which Tacitus truly calleth *educated luxury*. This subject of man's body is of all other things²⁵ in nature most susceptible of remedy; but then that remedy is most susceptible of error. For the same subtlety of the subject doth cause large possibility and easy failing; and therefore the inquiry ought to be the more exact.

2. To speak therefore of medicine, and to resume that we have said, ascending a little higher²⁶: the ancient opinion that man was *a microcosm*, an abstract or model of the world, hath been fantastically strained by Paracelsus and the alchemists, as if there were to be found in man's body certain correspondences and parallels, which should have respect to²⁷ all varieties of things, as stars, planets, minerals, which are extant in the great world. But thus much is evidently true, that of all substances which nature hath produced, man's body is the most extremely compounded. For we see herbs and plants are nourished by earth and water; beasts for the most part by herbs

²³ The good, this expression is used by Greek and Roman philosophical writers to signify 'the object of desire.'

²⁴ Cosmetic, from a Greek verb signifying 'to adorn.'

²⁵ All other things, the word 'other' is superfluous. Cp. p. 207, l. 7.

²⁶ Ascending a little higher, going rather more deeply into the subject. Cp. p. 115, n. 74. For the theory of the *microcosm*, see p. 157, n. 68. Plato, in the *Timaeus*, says that the body of man is composed of the same four elements, viz., earth, air, fire, and water, that the universe is composed of.

²⁷ Which should have respect to, i.e., answering to,

and fruits ; man by the flesh of beasts, birds, fishes, herbs, grains, fruits, water, and the manifold alterations, dressings and preparations of these several bodies before they come to be his food and aliment. Add hereunto that beasts have a more simple order of life, and less change of affections to work upon their bodies ; whereas man in his mansion,²⁸ sleep, exercise, passions, hath infinite variations : and it cannot be denied but that the body of man of all other things is of the most compounded mass. The soul, on the other side, is the simplest of substances, as is well expressed :

*And nought remains but ether bright,
The quintessence of heavenly light.*

So that it is no marvel though the soul so placed enjoy no rest, if that principle be true that *The motion of things is rapid out of their place, and quiet in their place.*²⁹ But to the purpose : this variable composition of man's body hath made it as an instrument easy to distemper³⁰ ; and therefore the poets did well to conjoin music and medicine in Apollo, because the office of medicine is but to tune this curious harp of man's body and to reduce it to harmony. So then the subject being so variable, hath made the art by consequent³¹ more conjectural ; and the art being conjectural hath made so much the more place to be left for imposture. For almost all other arts and sciences are judged by acts or masterpieces, as I may term them, and not by the successes³² and events. The lawyer is judged by the virtue³³ of his pleading, and not by the issue of the cause. The master in the ship is judged by the directing his course aright, and not by the fortune of the voyage. But the physician, and perhaps the politique,³⁴ hath no particular acts demonstrative of his ability, but is judged most by the event ; which is ever but as it is taken :³⁵ for who can tell,

²⁸ *Mansion*, the places which he inhabits. Cp. p. 179, n. 67.

²⁹ *Things move, &c.* Cp. *Essay xi.* "And as in nature things move violently to their place, and calmly in their place, so virtue in ambition is violent, and in authority settled and calm."

³⁰ As an instrument easy to distemper, like a musical instrument, which easily gets out of tune. *Distemper* means properly to derange.

³¹ By consequent, we should now say 'in consequence.'

³² Successes, p. 144, n. 89.

³³ Virtue, excellence.

³⁴ The politique, p. 7, n. 23.

³⁵ Which is ever but as it is taken, i.e. which different people may account for in different ways.

if a patient die or recover, or if a state be preserved or ruined, whether it be art or accident? And therefore many times the impostor is prized, and the man of virtue³⁶ taxed. Nay, we see [the] weakness and credulity of men is such, as³⁷ they will often prefer a mountebank or witch before a learned physician. And therefore the poets were clear-sighted in discerning this extreme folly, when they made Æsculapius³⁸ and Circe brother and sister, both children of the sun, as in the verses :

*Jove with his thunder hurled Apollo's son,
The great physician, to the shades below.*

And again,

*Now near the shelves of Circe's shores they run,
Circe the rich, the daughter of the sun,*

For in all times, in the opinion of the multitude, witches and old women and impostors have had a competition with physicians. And what followeth? Even this, that physicians say to themselves, as Salomon expresseth it upon an higher occasion,³⁹ *If it befall to me as befalleth to the fools, why should I labour to be more wise?* And therefore I cannot much blame physicians, that they use⁴⁰ commonly to intend⁴¹ some other art or practice, which they fancy more than their profession. For you shall have⁴² of them antiquaries, poets, humanists, statesmen, merchants, divines, and in every of these better seen⁴³ than in their profession; and no doubt upon this ground, that they find that mediocrity and excellency in their art maketh no difference in profit or reputation towards their fortune; for the weakness of patients, and sweetness of life, and nature of hope, maketh men depend upon physicians with all their defects. But nevertheless⁴⁴ these things which

³⁶ *The man of virtue*, the skilled physician. *Taxed*, p. 88. n. 74.

³⁷ *As*, that.

³⁸ *Æsculapius*, the god of medicine. *Circe*, an enchantress. The two quotations which follow are from Virgil's *Aeneid*. vii. 772. and 11.

³⁹ *Upon an higher occasion*, when dealing with a more important subject. *Eccles.* 2, 15.

⁴⁰ *They use*, p. 59, n. 70.

⁴¹ *Intend*, devote their attention to.

⁴² *Have of them*, find among them. *Humanists*, students of what are called 'the humanities,' viz. literature, history, and philosophy.

⁴³ *Better seen*, p. 33, n. 3.

⁴⁴ *But nevertheless*, &c. Bacon says more clearly in the *De Aug.* "But any one who considers these things carefully will see that the physicians are to

we have spoken of are courses begotten between a little occasion, and a great deal of sloth and default ; for if we will excite and awake our observation we shall see in familiar instances what a predominant faculty^{*5} the subtily of spirit hath over the variety of matter or form. Nothing more variable than faces and countenances : yet men can bear in memory the infinite distinctions of them ; nay, a painter with a few shells of colours, and the benefit of his eye, and habit of his imagination, can imitate them all that ever have been, are, or may be, if they were brought before him. Nothing more variable than voices ; yet men can likewise discern them personally^{*6} : nay, you shall have a *buffon* or *pantomimus*, will express as many as he pleaseth. Nothing more variable than the differing sounds of words ; yet men have found the way to reduce them to a few simple letters. So that it is not the insufficiency or incapacity of man's mind, but it is the remote standing or placing thereof, that breedeth these mazes^{*7} and incomprehensions. For as the sense afar off is full of mistaking, but is exact at hand,^{*8} so is it of the understanding : the remedy whereof is, not to quicken^{*9} or strengthen the organ, but to go nearer to the object ; and therefore there is no doubt but if the physicians will learn and use the true approaches^{*10} and avenyes of nature, they may assume as much as the poet saith :

*And since diseases vary, we will vary our arts ;
There are a thousand forms of disease, there shall be a thousand
methods of healing.*

Which that they should do, the nobleness of their art doth deserve ; well blame : for instead of giving up hope, they ought to have made greater exertions."

^{*5} Faculty, power. In the *De Aug.* it is, "what a command the subtily of the mind has over," &c. Spirit, the understanding.

^{*6} Discern them personally, distinguish one person's voice from another's. *Buffon*, buffoon. *Pantomimus*, a mimic ; literally, one who can imitate anything.

^{*7} Mazes, perplexities. Incomprehensions, inability to understand.

^{*8} At hand, close to the object. Bacon adds, by way of explanation, in the *De Aug.*, "Men are accustomed to look at nature, as it were, from a lofty tower and from a great distance, and to busy themselves too much with generalities : whereas if they would descend and approach particulars, and look at things themselves more closely and more carefully, their opinions would be more true and more useful." Cp. p. 183, l. 16, sq.

^{*9} Not to quicken ; in the *De Aug.* it is "not only to quicken."

^{*10} The true approaches, &c. viz., a close study of details. The two lines which follow are slightly altered from Ovid.

shadowed by the poets, in that they made *Æsculapius*⁵¹ to be the son of [the] sun, the one being the fountain of life, the other as the second stream: but infinitely more honoured by the example of our Saviour, who made the body of man the object of his miracles, as the soul was the object of his doctrine. For we read not that ever he vouchsafed to do any miracle about honour or money (except that one for giving tribute⁵² to Cæsar), but only about the preserving, sustaining, and healing the body of man.

3. Medicine is a science which hath been (as we have said) more professed than laboured, and yet more laboured than advanced; the labour having been, in my judgement, rather in circle than in progression. For I find much iteration, but small addition. It considereth causes of diseases, with the occasions or impulsions⁵³; the diseases themselves, with the accidents⁵⁴; and the cures, with the preservations. The deficiencies which I think good to note, being a few of many, and those such as are of a more open and manifest nature, I will enumerate and not place.⁵⁵

4. The first is the discontinuance of the ancient and serious diligence of Hippocrates,⁵⁶ which used to set down a narrative of *Medicinal history.*⁵⁷ the special cases of his patients, and how they proceeded, and how they were judged⁵⁸ by recovery or death. Therefore having an example proper in the father of the art, I shall not need to allege an example foreign, of the wisdom of the lawyers, who are careful to report new cases and decisions, for the direction of future judgements. This continuance of medicinal history I find deficient; which I understand neither to be so infinite as to extend to every common case, nor so reserved as to admit none but wonders: for many things are new

⁵¹ *Æsculapius*, p. 208, n. 38.

⁵² *For giving tribute*, "And when they were come to Capernaum, they that received tribute money came to Peter and said, Doth not your master pay tribute? He saith, yes. Jesus said to Peter, Go thou to the sea and cast an hook, and take up the fish that first cometh up; and when thou hast opened his mouth, thou shalt find a piece of money: that take and give unto them for me and thee."—*Matthew xvii. 24.*

⁵³ *Impulsions*, circumstances which bring on diseases.

⁵⁴ *The accidents*, p. 17, n. 76.

⁵⁵ *And not place*, i.e. without arranging them in any regular order.

⁵⁶ *Hippocrates*, p. 53, n. 36.

⁵⁷ *Judged*, decided.

in the manner, which are not new in the kind ; and if men will intend⁵⁸ to observe, they shall find much worthy to observe.

5. In the inquiry which is made by anatomy, I find much deficiency :

Comparative for they inquire of the parts, and their substances, *anatomy*. figures, and collocations ; but they inquire not of the diversities of the parts,⁵⁹ the secracies of the passages, and the seats or nestling of the humours,⁶⁰ nor much of the footsteps and impressions of diseases.⁶¹ The reason of which omission I suppose to be, because the first inquiry may be satisfied in the view of one or a few anatomies : but the latter, being comparative and casual,⁶² must arise from the view of many. And as to the diversity of parts, there is no doubt but the facture⁶³ or framing of the inward parts is as full of difference as the outward,

⁵⁸ Will intend, will give their minds to. After 'worthy to observe,' Bacon adds in the *Dr Aug.*, 'even in things which seem common.'

Besides the subjects mentioned in the text, Bacon in the *De Aug.* further includes, under the head of medicine, the Prolongation of life, and the Preservation of health. He complains that the first of these has not been studied as an independent branch of medicine. Physicians have been content with curing or preventing diseases, and have neglected the means of prolonging life by preventing the gradual breaking up of the system which results in death. See p. 191, n. 37. The subject of preserving health has, he says, been treated unskilfully. Physicians have laid too much stress on the *kind* of food a man eats, neglecting the *quantity*. And even in the matter of quantity they have only insisted on moderation, forgetting that a man is likely to suffer by a sudden change in the diet to which he has been accustomed. Nor have they considered by what kinds of exercise different diseases may be cured.

⁵⁹ The diversities of the parts, viz. in different individuals. Bacon means to say that the general structure of the human frame was known well enough, but that, owing to the neglect of comparative anatomy, it was not known of what variations in structure it admitted. It must be remembered that the practice of comparative anatomy was difficult owing to the difficulty of getting bodies. The Church discouraged dissection, and people naturally objected to giving the bodies of their friends and relations for the purpose. As a matter of fact, great advances had been made in anatomy during the fifteenth and sixteenth century both in Italy and in France. The most famous Italian school was at Bologna. For the history of the science of Anatomy the student may refer to Whewell's *History of the Inductive Sciences*, Vol. iii., Bk. 17; Hallam's *Literary History*, Vol. ii., Pt. ii., ch. 8; and to the new *Encyclopaedia*.

⁶⁰ The humours, the juices. Cp. p. 191, l. 1.

⁶¹ Impressions of diseases, Bacon adds in the *Dr Aug.* 'as they show themselves in different bodies when dissected.'

⁶² Casual, showing accidental variations.

⁶³ Facture, p. 201, n. 4.

and in that is the cause continent⁶⁴ of many diseases ; which not being observed, they⁶⁵ quarrel many times with the humours, which are not in fault ; the fault being in the very frame and mechanique⁶⁶ of the part, which cannot be removed by medicine alterative, but must be accommodate and palliate⁶⁷ by diets and medicines familiar. And for the passages⁶⁸ and pores, it is true which was anciently noted, that the more subtle of them appear not in anatomies, because they are shut and latent in dead bodies, though they be open and manifest in live : which being supposed, though the inhumanity of *vivisection* was by Celsus⁶⁹ justly reproved, yet in regard of the great use of this observation, the inquiry needed not by him so slightly to have been relinquished altogether, or referred to the casual practices of surgery ; but mought have been well diverted upon the dissection of beasts alive, which, notwithstanding the dissimilitude of their parts, may sufficiently satisfy this inquiry. And for the humours, they are commonly passed over in anatomies as purgaments⁷⁰ ; whereas it is most necessary to observe, what cavities, nests, and receptacles the humours do find in the parts, with the differing kind of the humour so lodged and received. And as for the footsteps⁷¹ of diseases, and their devastations of the inward

⁶⁴ *Continent*, containing. The phrase is borrowed from Celsus, a writer on medicine, born B.C. 53.

⁶⁵ *They*, viz., physicians.

⁶⁶ *Mechanique*, p. 189, n. 29.

⁶⁷ *Accommodate and palliate*, accommodated and palliated. Cp. p. 58, l. 10, &c. *Familiar*, appropriate.

⁶⁸ *And for the passages, &c.* This difficulty is almost entirely removed by the perfection to which the art of making anatomical preparations has been brought. Berengario of Carpi, who died at Ferrara in 1550, is said to have been the first person who made use of injections in order to make the vessels visible. He employed water (probably coloured) for this purpose. In one branch of anatomy, namely, the doctrine of the development of the osseous parts, the use of madder in the food of the living animal has led to very curious results. It stains the portions of bones developed during its use of a bright red. E.

⁶⁹ *By Celsus*, The words of Celsus are, "It is both cruel and superfluous to dissect the bodies of living creatures." Bacon seems to have understood by 'living creatures' human beings. The practice of dissecting live criminals was not unknown even in the sixteenth century. Vivisection is now practised upon animals, under conditions fixed by law.

⁷⁰ *Purgaments*, excretions.

⁷¹ *And as for the footsteps, &c.* Bacon here insists on the use of what is now called *pathological anatomy*, i.e., the study by means of dissection of the

parts, impostumations,⁷² exulcerations, discontinuations,⁷³ putrefactions, consumptions, contractions, extensions, convulsions, dislocations, obstructions, repletions, together with all preternatural substances, as stones, carnosities,⁷⁴ excrescences, worms and the like; they ought to have been exactly observed by multitudes of anatomies, and the contribution of men's several experiences, and carefully set down both historically according to the appearances, and artificially⁷⁵ with a reference to the diseases and symptoms which resulted from them, in case where the anatomy is of a defunct patient; whereas now upon opening of bodies they are passed over slightly and in silence.

6. In the inquiry of diseases, they do abandon the cures of many, some as in their nature incurable, and others as passed the period of cure; so that Sylla⁷⁶ and the Triumvirs never proscribed so many men to die, as they do by their ignorant edicts: whereof⁷⁷ numbers do escape with less difficulty than they did in the Roman proscriptions. Therefore I will not doubt to note as a deficiency, that they inquire not the perfect cures of many diseases, or extremities of diseases⁷⁸; but pronouncing them incurable do enact a law of neglect, and exempt ignorance from discredit.

7. Nay further, I esteem it the office of a physician not only to restore health, but to mitigate pain and dolors⁷⁹; and not only when such mitigation may conduce to recovery, but when it may serve to make

Concerning Euthanasia. a fair and easy passage.⁸⁰ For it is no small felicity which Augustus Cæsar was wont to wish to himself,

changes induced by disease in the organs. The elucidation of local diseases by anatomy and the surgical means of treating them do not seem to have been begun until late in the seventeenth century. By 'the footsteps of disease' Bacon means the marks left by disease.' Cp. 'the footsteps of learning,' p. 89, n. 84.

⁷² *Impostumations*, abscesses.

⁷³ *Discontinuations*, solutions of continuity.

⁷⁴ *Carnosities*, fleshy tumours.

⁷⁵ *Artificially*, p. 192, n. 41.

⁷⁶ *Sylla*, p. 93, n. 12. *The triumvirs*, Rome was twice governed by triumvirs, i.e. by a commission of three: once by Julius Cæsar, Pompey, and Crassus, and once by Octavius Cæsar, Antony, and Lepidus.

⁷⁷ *Whereof*, i.e. of whom nevertheless.

⁷⁸ *Extremities of diseases*, cases which seem hopeless.

⁷⁹ *Dolors*, suffering. It is a Latin word.

⁸⁰ *Passage*, i.e. death. Suetonius says that "Augustus scarcely ever heard

Further inquiry concerning incurable diseases.

that same *Euthanasia*; and which was specially noted in the death of Antoninus Pius,⁸¹ whose death was after the fashion and semblance of a kindly and pleasant sleep. So it is written of Epicurus,⁸² that after his disease was judged desperate, he drowned his stomach and senses with a large draught and ingurgitation of wine; whereupon the epigram was made, *Hinc Stygias ebrius hausit aquas*; he was not sober enough to taste any bitterness of the Stygian water.⁸³ But the physicians contrariwise do make a kind of scruple and religion⁸⁴ to stay with the patient after the disease is deplored; whereas in my judgment they ought both to inquire the skill, and to give the attendances,⁸⁵ for the facilitating and assuaging of the pains and agonies of death.

8. In the consideration of the cures of diseases, I find a deficiency in the receipts of propriety,⁸⁶ respecting the particular cures of diseases:

Experimental medicines. for the physicians have frustrated the fruit of tradition and experience by their magistralities,⁸⁷ in adding and taking out and changing *quid pro quo* in their receipts, at their pleasures; commanding so over the medicine, as the medicine cannot command over the disease. For except it be treacle and *mitthridatum*, and of late *diascordium*, and a few more, they tie themselves to no receipts severely and religiously. For as to the confections of sale⁸⁸ which are in the shops, they are for readiness and not for propriety.⁸⁹ For they are upon general intentions of purging, opening, comforting, altering, and not much appropriate to particular diseases. And this is the cause why

of any one dying quickly and painlessly without praying that he and his might die in the same way." *Euthanasia* is a Greek word, signifying '*an easy death.*'

⁸¹ *Antoninus Pius*, p. 81, § 7. It is said of him 'that he turned, as if in sleep, and breathed out his spirit.' W.

⁸² *Epicurus*, B.C. 342, was an Atomist in physics, but is best known as the advocate of the doctrine that pleasure is the greatest good.

⁸³ *Stygian water*, the Styx was one of the rivers in the lower world.

⁸⁴ *Religion*, equivalent to *scruple*. Cp. *religiously*, l. 20. It is a Latinism, as also is the use of 'deplored' in l. 9 in the sense of 'given up.'

⁸⁵ *The attendances*, diligent study.

⁸⁶ *Receipts of propriety*, i.e. the special medicines proper for particular diseases, as distinguished from aperients, astringents, &c.

⁸⁷ *Magistralities*, dogmatism. The word is used in a slightly different sense on p. 195, l. 12.

⁸⁸ *Confections*, ready made medicines.

⁸⁹ *For readiness and not for propriety*, i.e. they are for immediate use, and are not specially intended for any particular disease.

empirics and old women are more happy many times in their cures than learned physicians, because they are more religious⁹⁰ in holding their medicines. Therefore here is the deficiency which I find, that physicians have not, partly out of their own practice, partly out of the constant probations⁹¹ reported in books, and partly out of the traditions of empirics, set down and delivered over certain experimental⁹² medicines for the cure of particular diseases, besides their own conjectural and magistral⁹³ descriptions. For as they were the men of the best composition in the state of Rome, which either being consuls⁹⁴ inclined to the people, or being tribunes inclined to the senate ; so in the matter we now handle, they be the best physicians, which being learned incline to the traditions of experience, or being empirics⁹⁵ incline to the methods of learning.

9. In preparation of medicines I do find strange, specially considering how mineral medicines have been extolled,⁹⁶ and that they are safer for the outward than inward parts, that no man hath sought to make an imitation by art of natural baths and medicinable fountains : which nevertheless are confessed to receive their virtues⁹⁷ from minerals: and not so only, but discerned⁹⁸ and distinguished from

*Imitation of
nature in baths
and medicinal waters.*

⁹⁰ Religious, scrupulous. Cp. p. 214, n. 84. *Holding*, keeping to.

⁹¹ Probations, favourable trials.

⁹² Experimental, i.e. which have been proved by experience to be effectual.

⁹³ Magistral, dogmatic. After this sentence Bacon adds in the *De Aug.*, "It might with some plausibility be argued that a skilled physician, after considering the constitution, age, and habits of the patient, the time of the year, and so forth, ought to order the medicine which seemed to him most fitted for the case, without adhering to any fixed rules. This opinion, however, is a mistaken one. It gives too much authority to the physician's judgment, and allows too little weight to experience." General rules must be brought into conformity with experience : and, on the other hand, individual experience must be tested by general principles, which are the results of a larger experience.

⁹⁴ Consuls, p. 53, n. 31. The consuls were the aristocratic, the tribunes the democratic magistrates. Government came to a stand still, if these two classes of magistrates, instead of making concessions one to the other, were at open war.

⁹⁵ Empirics, see p. 17, n. 77.

⁹⁶ Have been extolled, viz. by the school of Paracelsus, in opposition to the Galenists, who chiefly had recourse to vegetable decoctions and infusions. E.

⁹⁷ Their virtues, their healing power.

⁹⁸ But discerned, i.e. men have discerned.

what particular mineral they receive tincture, as sulphur, vitriol, steel, or the like : which nature,²² if it may be reduced to compositions of art,¹ both the variety of them will be increased, and the temper of them will be more commanded.²

10. But lest I grow to be more particular than is agreeable either to

The physician's clue, or concerning interchange of medicines my intention or to proportion, I will conclude this part with the note of one deficiency more, which seemeth to me of greatest consequence ; which is, that the prescripts³ in use are too compendious to attain their end : for, to my understanding, it is a vain and flattering opinion to think any medicine can be so sovereign or so happy, as that the receipt or use of it⁴ can work any great effect upon the body of man. It were a strange speech which spoken, or spoken oft, should reclaim a man from a vice to which he were by nature subject. It is order, pursuit, sequence, and interchange of application, which is mighty in nature : which although it require more exact knowledge in prescribing, and more precise obedience in observing,⁵ yet is recompensed with the magnitude of effects. And although a man would think, by the daily visitations of the physicians, that there were a pursuance in the cure⁶ : yet let a man look into their prescripts and ministrations,⁷ and he shall find them but inconstancies⁸ and every day's devices, without any settled providence⁹

²² *Nature*, viz. the natural tincture of the water.

¹ *Reduced to compositions of art*, i.e. imitated artificially.

² *The temper of them will be more commanded*, men will be able to regulate the strength of them at will.

³ *Prescripts*, p. 203, n. 14.

⁴ *Use of it*, the Latin adds 'alone.'

⁵ *In observing*, viz. on the part of the patient.

⁶ *That there were a pursuance in the cure*, i.e. that the physicians were following out a regular system of treatment.

⁷ *Ministrations*, the things which they administer.

⁸ *Inconstancies*, inconsistencies. We use the word now in the sense of fickleness.

⁹ *Providence*, design. He adds in the Latin, "Physicians ought at the very beginning, as soon as they have carefully diagnosed a case, to think out a regular system of treatment, from which they should not deviate without serious cause. And surely physicians may know that there are, say, three or four medicines which are rightly prescribed for some serious disease, and which will cure it, if taken in the right order and at proper intervals : but that harm will be done if any of these be taken by itself, or if they be taken in the wrong order, or not at proper intervals."

or project. Not that every scrupulous or superstitious prescript is effectual, no more than every straight¹⁰ way is the way to heaven ; but the truth of the direction must precede severity¹¹ of observance.

11. For cosmetic, it hath parts civil,¹² and parts effeminate : for cleanliness of body was ever esteemed to proceed from a due reverence to God, to society, and to ourselves.¹³ As for artificial decoration, it is well worthy of the deficiencies which it hath; being neither fine enough to deceive, nor handsome¹⁴ to use, nor wholesome to please.

¹⁰ Straight, The Latin has 'narrow.' Bacon has in mind Christ's saying, "Strait is the gate and narrow is the way which leadeth unto life, and few there be that find it."

¹¹ Severity, carefulness. Bacon means to say that it is of no use to follow a way carefully, if it does not lead to the end that we wish to reach. He adds in the *De Aug.* that what is required above all things is a true and active Natural Philosophy upon which the science of medicine may be built. With reference to the state of medical science in the sixteenth century, Hallam says, on the authority of Sprengel, that "the theory of medicine was guided and corrected by the continual discoveries made in anatomy. The observations of the period became more acute and accurate. Those of Plater and Forresti, especially the latter, are still reputed classical in medical literature. Prosper Alpinus may be deemed the father in modern times of diagnostic science. Plater made the first, though an imperfect attempt at a classification of diseases. Yet the observations made in this age, and the whole practical system, are not exempt from considerable faults : the remedies were too topical, the symptoms of disease were more regarded than its cause : the theory was too simple and general ; above all, a great deal of credulity and superstition prevailed in the art. Many among the first in science, especially in Germany, believed in demoniacal possessions and sorcery, or in astrology. The best physicians of the century were either Italian or French." Of the most important discovery of his time, that of the circulation of the blood, made by Harvey, Court Physician to James I., Bacon nowhere makes any mention. Harvey began to teach this theory in 1619, four years before the publication of *De Aug.*

The ignorance and pretensions of physicians continued to be favourite subjects of ridicule with satiric and comic writers long after the sixteenth century.

¹² Civil, see p. III, n. 40.

¹³ To ourselves, 'whom,' he adds in the *De Aug.*, 'we ought to reverence quite as much as, nay more than, others.' Ellis quotes from the *New Atlantis*, 'and they (i. e. the people of Bensalem) say that the reverence of a man's self is, next to religion, the chiefest bridle of all vices.' By *artificial decoration* he means painting the face : and in the *De Aug.* he expresses his astonishment that this depraved practice has not been forbidden by the laws, along with love-locks and extravagant apparel.

¹⁴ Bacon must have meant to write 'handsome to please, nor wholesome to use.' E.

12. For athletic, I take the subject of it largely, that is to say, for any point of ability whereunto the body of man may be brought, whether it be of activity, or of patience¹⁵; whereof activity hath two parts, strength and swiftness; and patience likewise hath two parts, hardness against wants and extremities, and endurance of pain or torment; whereof we see the practices in tumblers, in savages,¹⁶ and in those that suffer punishment. Nay, if there be any other faculty which falls not within any of the former divisions, as in those that dive, that obtain a strange power of containing respiration, and the like, I refer it to this part. Of these things the practices are known,¹⁷ but the philosophy¹⁸ which concerneth them is not much inquired; the rather, I think, because they are supposed to be obtained, either by an aptness of nature, which cannot be taught, or only by continual custom, which is soon prescribed: which though it be not true, yet I forbear to note any deficiences: for the Olympian games are down long since,¹⁹ and the mediocrity of these things is for use; as for the excellency of them it serveth for the most part but for mercenary ostentation.

13. For²⁰ arts of pleasure sensual, the chief deficience in them is of

¹⁵ Patience, endurance. The word 'athletic' is a Greek word, and signifies 'training,' or 'discipline.'

¹⁶ In savages, i.e. as he explains in the *De Aug.*, 'in their hard diet.'

¹⁷ The practices are known, i.e. it is known that they are sometimes done.

¹⁸ The philosophy, &c. 'and,' he adds in the *De Aug.* 'the inquiry into the causes of them.'

¹⁹ Are down long since, have long since ceased. Bacon refers to the great national festival of the Greeks, held every four years at Olympia, and dating from B.C. 776.

²⁰ § 13. This passage is considerably enlarged in the *De Aug.*, where Bacon says, 'there are as many voluptuary arts as there are senses. The eyes are delighted by painting, and by countless other arts of magnificence, concerned with buildings, gardens, apparel, vases, cups, gems, and the like. The ear is soothed by music, with all its apparatus of sounds, wind and strings. The arts which relate to sight and hearing are held the most liberal. Those two senses are the most chaste, and the arts, which relate to them, the most learned, for even mathematics is their handmaid. One of them has some relation to memory and demonstrations, the other to character and the affections of the mind. The delights of the remaining senses, and the arts which relate to them, are less esteemed, being more akin to luxury than to magnificence. Unguents, perfumes, the luxuries of the table, and, above all, incentives to lust, stand more in need of a censor than a teacher.'

laws to repress them. For as it hath been well observed,²¹ that the arts which flourish in times while virtue is in growth, are military; and while virtue is in state,²² are liberal; and while virtue is in declination, are voluptuary: so I doubt that this age of the world is somewhat upon the descent of the wheel.²³ With arts voluptuary I couple practices jocular; for the deceiving of the senses is one of the pleasures of the senses. As for games of recreation, I hold them to belong to civil²⁴ life and education. And thus much of that particular human philosophy which concerns the body, which is but the tabernacle of the mind.

XI. Pp. 219—227. The science of mind has two branches, the first dealing with the substance, origin, and laws of the mind or soul, the second dealing with its powers. In this section Bacon considers the first branch only, and complains that in it, notwithstanding the number of students, no satisfactory conclusions have been arrived at. Indeed, since the soul was created in a supernatural way, it is reasonable to suppose that the laws which it obeys are supernatural also, and, therefore, only discoverable by revelation. There are two appendices to this first branch of the science of mind, viz., *divination* and *fascination*, with reference to which very absurd ideas are entertained. Divination is of two kinds, viz., artificial and natural. Artificial Divination is a prediction based upon some sign or argument: and this, again, is of two kinds, according as the prediction is based on a mere coincidence, as in heathen auguries, or on a knowledge of causes, as in the prediction of an eclipse by an astronomer. The consideration of the validity of predictions of this latter kind belongs to the several sciences. By Natural Divination is meant that

²¹ *It hath been well observed, &c.* Cp. *Essay* 58. "In the youth of a state, arms do flourish: in the middle age of a state, learning; and then both of them together for a time: in the declining age of a state, mechanical arts and merchandise."

²² *In state*, at its height, and firmly established.

²³ *Upon the descent of the wheel*, on the decline. The wheel is the emblem of change.

²⁴ *Civil*, p. III, n. 40.

Bacon adds a note in the *De Aug.* to the effect that he wishes all knowledge relating to the human body to be considered as a part of medicine—the knowledge of its parts, its functions, its juices, of the processes of breathing, sleep, generation, pregnancy, growth, &c. If he had been constituting 'a science of body' *de novo* he would have specially included these subjects under medicine. He has not done so, partly because he wishes, as far as possible, to keep to the ancient divisions of knowledge, partly because he wishes to avoid excessive sub-division. The consideration of sensation and voluntary motion belong, he says, more properly to the science of mind. See below, n. 62.

foresight with which, under certain conditions, the mind is supposed to be endowed. This again is of two kinds. Firstly, when the mind is self-absorbed and not distracted, it is supposed to see into the future, in which case the divination is *primitive*: secondly, it is thought that in certain ecstatic states of mind the future is revealed to it by God and spirits, in which case the divination is by *influxion*. Bacon has already noticed divination, on p. 122.

By *fascination* is meant the influence which a man by the force of his imagination can exercise over others. Most extraordinary notions as to the extent of this influence are held by the school of Paracelsus. But the opinion seems reasonable enough that one mind may influence another, just as one body may infect another. Granting that the imagination has some such power, it is important to consider how it may be increased. Even if it be allowed that the use of charms and ceremonies increases it merely by acting on the imagination, and not in virtue of a compact with the Evil One, and that they be used honestly for that purpose, still Bacon thinks that the use of them should be discouraged, as tempting men to think that those great results which, by the ordinance of God, are to be obtained only by the sweat of our brow, may be attained by the performance of a few easy ceremonies.

XI. I. For human knowledge which concerns the mind, it hath two parts²⁵; the one that inquireth of the substance or nature of the

²⁵ *Hath two parts*, In the *De Aug.* another distinction is introduced between the rational soul, which is divine, and the irrational soul, which is common to men and brutes. Bacon has already noticed, on p. 172, the difference in the mode of creation of these two souls, the first coming from the breath of God, the second from the womb of the elements. The Scripture says of the generation of the rational soul, that "God made man of the dust of the earth and breathed into his nostrils the breath of life." But the creation of the irrational soul, or the soul of brutes, was effected by the words, "Let the earth bring forth: let the water bring forth." This irrational soul, as it exists in man, is only the instrument of the rational soul, and, in men and brutes alike, it springs from the dust of the earth. For the Scripture does not say that "God formed the body of man of the dust of the earth," but that "he formed man," i.e. the entire man, "the breath of life" only excepted. Therefore, besides the division of the science of mind given in the text, there is another division necessary, for the science of the rational soul or breath of life is distinct from that of the sensible or produced soul. This division, says Bacon, I have borrowed from Scripture, but I should not have done so, had it not been in accord with the principles of philosophy: for I am now treating of philosophy only, and not of theology. Even those philosophers who follow the sense only perceive that the soul of man is raised above the souls of brutes by many and great excellencies. Now, wherever we find a sign of so many and great excellencies, there we should constitute a specific difference: and I reject altogether the theory that the human soul differs from that of brutes only in degree.

soul or mind, the other that inquireth of the faculties or functions thereof. Unto the first of these, the considerations of the original of the soul, whether it be native or adventive, and how far it is exempted from laws of matter, and of the immortality thereof, and many other points, do appertain : which have been not more laboriously inquired than variously reported ; so as the travail therein taken seemeth to have been rather in a maze than in a way.²⁶ But although I am of opinion that this knowledge may be more really and soundly inquired, even in nature,²⁷ than it hath been ; yet I hold that in the end it must be bounded by religion, or else it will be subject to deceit and delusion.

What Bacon says in the text as to the impossibility of discovering the original or substance of the soul applies only to the rational soul. The irrational soul is as purely material as any part of man's body, being a compound of air and flame, and is a proper subject of inquiry with regard both to its substance and its faculties : but the inquiry has not been well pursued.

This doctrine of the duality of the soul is borrowed from Telesius. Bacon is here, though without knowing it, on the threshold of materialism. If certain functions can be ascribed to the material soul, why should not all be ? The immaterial soul seems to be a useless addition, made to satisfy theology : and its existence was denied by the materialists of the next century, who maintained the existence of one substance with two sets of properties, one physical, the other mental. The following are simple examples of the difficulties which beset Bacon's theory. To the immaterial soul he assigns the intellectual and moral faculties, but he ascribes sensation to the material soul : see below n. 62. Now, sensation is a psychical state ; hence the supposed distinction in kind between physical and psychical states is a fiction. Matter is endowed with consciousness : if this is granted, all mental activity may be regarded as a function of matter. Mind as distinguished from matter need not exist. Again, it must be allowed that brutes understand, will, desire, and, to a certain extent, reason : but, says Bacon, because man does all these things in a more excellent way, therefore his soul must differ in kind. Instead of being material, it must be immaterial. Is it not more reasonable to suppose that, if these functions can be performed at all by a material soul, the soul of man is material too, and differs from that of the brutes only in degree ? But, it is said, an immaterial soul is, at least, required to account for the moral sense. Not at all. The moral sense possesses none of those mysterious properties which Intuitionists attribute to it. Its growth can be traced : and it is just as difficult, and no more so, for materialists to account for the moral sense, as for any intellectual activity.

²⁶ *In a mase than in a way*, Cp. "rather in circle than in progression." P. 210, l. 11.

²⁷ *Even in nature*, i.e. without the aid of revelation.

For as the substance of the soul in the creation was not extracted out of the mass of heaven and earth by the benediction of a *Let it bring forth*,²⁸ but was immediately inspired from God, so it is not possible that it should be (otherwise than by accident) subject to the laws of heaven and earth, which are the subject of philosophy ; and therefore the true knowledge of the nature and state of the soul must come by the same inspiration that gave the substance. Unto this part of knowledge touching the soul there be two appendices ; which, as they have been handled, have rather vapoured forth fables than kindled truth ; divination and fascination.

2. Divination hath been anciently and fitly divided into artificial and natural ; whereof artificial is when the mind maketh a prediction by argument, concluding upon signs and tokens ; natural is, when the mind hath a presention²⁹ by an internal power, without the inducement of a sign.³⁰ Artificial is of two sorts ; either when the argument is coupled with a derivation of³¹ causes, which is rational ; or when it is only grounded upon a coincidence of the effect, which is experimental : whereof the latter for the most part is superstitious ; such as were the heathen observations upon the inspection of sacrifices, the flights of birds, the swarming of bees ; and such as was the Chaldean astrology, and the like. For artificial divination, the several kinds thercof are distributed amongst particular knowledges. The astronomer hath his predictions, as of conjunctions, aspects,³² eclipses, and the like. The

²⁸ *Let it bring forth*, See p. 65, § 2, and p. 172, l. i., sq. *Inspired*, used in its literal sense of *breathe* into man.

²⁹ *Presention*, presentiment.

³⁰ *Without the inducement of a sign*, without being led to it by a sign. See p. 172, n. 35,

³¹ *A derivation of*, a deduction from : i.e. when the prediction is really a deduction, based on our knowledge of the causes on which the event depends. This process, of course, is perfectly legitimate. Predictions based on mere coincidences are illegitimate : they involve the fallacy of non-observation. (See below, xiv. 9.) As Bacon says in the 35th *Essay*, " Men mark when they hit, and never mark when they miss." A man, who predicts on the faith of a mere coincidence, mistakes a chance coincidence for a causal connection.

³² *Conjunctions, aspects*, These are astrological terms. Cp. p. 110, l. 22. The folly of predicting a man's fortunes from the position of the stars at the time of his birth will be apparent to any one who will consider that a man's birth must coincide with *some* position of the stars. The position of the stars and the time of a man's birth are circumstances which are quite unconnected, and which depend on causes that are quite unconnected. To suppose that the position of the stars at the time of a man's birth influences his fortunes is as

physician hath his predictions, of death, of recovery, of the accidents⁸⁸ and issues of diseases. The politique⁸⁹ hath his predictions : *Here is a city⁹⁰ for sale, which will fall as soon as it finds a purchaser!* which stayed not long to be performed, in Sylla first, and after in Cæsar. So as these predictions are now impertinent, and to be referred over.⁹¹ But the divination which springeth from the internal nature of the soul, is that which we now speak of ; which hath been made to be of two sorts, primitive⁹² and by influxion. Primitive is grounded upon the supposition, that the mind, when it is withdrawn⁹³ and collected into itself, and not diffused into the organs of the body, hath some extent and latitude of prenition⁹⁴ ; which therefore appeareth most in sleep, in ecstasies,⁹⁵ and near death, and more rarely in waking

foolish as it would be to suppose that the thunderstorm which happened on the night of Cromwell's death was the cause of his death. To infer that, because one man born under a certain conjunction of the planets was fortunate, all men born under the same conjunction must be fortunate too, is as absurd as it would be to infer that every time there is a thunderstorm, a ruler must die. The prediction of *an eclipse* is legitimate, because we know the laws of the causes on which it depends.

⁸⁸ *Accidents*, p. 17, n. 76. The reason why a physician's predictions are less often fulfilled than an astronomer's is that he has not the same *data* to go upon. The internal state of the body can only be inferred ; it cannot be directly observed, nor ascertained by experiment.

⁸⁹ *Politique*, p. 7, n. 23. The politician's predictions, unless they are very general, are less trustworthy than the physician's, for this reason that, although he knows that a certain combination of circumstances will produce a certain result, still he does not know when or where that combination will occur. The astronomer, on the other hand, not only knows that a given collocation of the heavenly bodies will produce an eclipse, but he also knows when that collocation will occur.

⁹⁰ *Here is a city, &c.* This was the exclamation of the African king Jugurtha, when he visited Rome. Sylla and Julius Cæsar won over the soldiery and the populace by largesses, and so acquired power.

⁹¹ *To be referred over*, viz., to the several sciences. The Logic of Induction will tell us the conditions of a legitimate prediction, but only a specialist can tell us when those conditions have been fulfilled in a given case. For 'impertinent,' see p. 118, n. 96.

⁹² *Primitive*, original, not based on information from without.

⁹³ *It is withdrawn.....organs of the body*, i.e. when the mind is so absorbed, that it does not consciously direct the actions of the body.

⁹⁴ *Prenition*, p. 200, n. 99.

⁹⁵ *Ecstasies*, trances. A trance is a state of body in which the action of the senses is suspended. The presentiments, of which Bacon talks, are pure

apprehensions ; and is induced⁴¹ and furthered by those abstinences and observances which make the mind most to consist in itself.⁴² By influxion,⁴³ is grounded upon the conceit that the mind, as a mirror or glass, should take illumination from the foreknowledge of God and spirits : unto which the same regiment⁴⁴ doth likewise conduce. For the retiring of the mind within itself is the state which is most susceptible of divine influxions ; save that it is accompanied in this case with a fervency and elevation⁴⁵ (which the ancients noted by fury), and not with a repose and quiet, as it is in the other.

3. Fascination is the power and act of imagination intensive upon⁴⁶ other bodies than the body of the imaginant, for of that we spake in the proper place.⁴⁷ Wherein the school of Paracelsus,⁴⁸ and the disciples of pretended natural magic have been so intemperate, as they have exalted the power of the imagination to be much one with the power of miracle-working faith.⁴⁹ Others, that draw nearer

hallucinations. He says, very truly, in the *De Aug.*, that we seldom experience them *when we are in good health*. When the body is in an unhealthy and abnormal state, the mind is often beset by strange fancies.

⁴¹ Induced, brought on. See p. 172, n. 35.

⁴² To consist in itself, i.e. to be unconscious of what is going on around.

⁴³ By influxion, i.e. divination by influxion. It is not uncommon for people, under certain conditions, to mistake their own sensations and impressions for spiritual revelations. Ellis quotes from Campanella—"But when any evil is impending, I seem, between sleeping and waking, to hear a voice saying distinctly to me, 'Campanella! Campanella!' and sometimes saying more : and I listen, and know not who is speaking." Cowper says in one of his letters, "At four this morning I started out of a dream, in which I seemed sitting before the fire, and very close to it, in great trouble : when suddenly, stamping violently with my foot, and springing suddenly from my seat, I heard these words—'I hope the Lord will carry me through it.' This needs no interpretation : it is plainly a forewarning of woe to come."

Every one knows how difficult it is, on awaking, to shake off the impressions of a very vivid dream..

⁴⁴ Regiment, viz., the abstinences and observances referred to in l. i.

⁴⁵ 'And,' he adds in the *De Aug.*, 'as it were by an impatience of the presence of the Deity.' Bacon refers to the frenzy by which the ancient priestesses pretended to be possessed, when they were delivering the oracles of the gods.

⁴⁶ Intensive upon, influencing.

⁴⁷ In the proper place, see p. 204, n. 19.

⁴⁸ Paracelsus, p. 197, n. 82. For 'natural magic,' see p. 188, n. 18.

⁴⁹ Miracle-working faith, Bacon refers to the saying of Jesus, 'Verily, I say unto you, if ye have faith as a grain of mustard-seed, ye shall say unto this

to probability, calling to their view the secret passages of things⁵⁰ and specially of the contagion that passeth from body to body, do⁵¹ conceive it should likewise be agreeable to nature, that there should be some transmissions and operations from spirit to spirit without⁵² the mediation of the senses ; whence the conceits have grown (now almost made civil⁵³) of the mastering spirit,⁵⁴ and the force of confidence⁵⁵ and the like. Incident unto this is the inquiry how to

mountain, Remove hence to yonder place, and it shall remove ; and nothing shall be impossible unto you."

⁵⁰ *Passages of things*, Modes in which things work. Cp. p. 125, l. 11.

⁵¹ In the *De Aug.* Bacon also mentions the transmission of magnetic power.

⁵² He adds in the *De Aug.*, "especially when we consider that the mind is, above all things, energetic in action, and susceptible to impression."

⁵³ Civil, general. Bacon considers the transmission of spirits, and the force of imagination in his *Natural History*, Century x. *Ellis & Spedding's Edn.*, Vol. 2, p. 640, and especially p. 652, sq.

⁵⁴ * The mastering spirit, In *Antony and Cleopatra*, Shakspeare makes the soothsayer say to Antony,

O Antony, stay not by Cæsar's side :
 Thy demon (that's thy spirit which keeps thee) is
 Noble, courageous, high, unmatched,
 Where Cæsar's is not : but near him thy angel
 Becomes a fear, as being o'er-powered thy spirit
 Is all afraid to govern thee near him,
 But, he away, 'tis noble.

Act 2, Sc. 4.

⁵⁵ The force of confidence, The meaning which Bacon attached to *fascination* is clear from the following passage in his *Natural History* : "The problem therefore is, whether a man constantly and strongly believing that such a thing shall be (as that such an one will love him, or that such an one will grant him his request, or that such an one shall recover a sickness, or the like) it doth help anything to the effecting of the thing itself. And here again we must warily distinguish : for it is not meant that it should help by making a man more stout, or more industrious ; (in which kind constant belief doth much;) but merely by a secret operation, or binding, or changing the mind of another Audacity and confidence doth, in civil business, so great effects, as a man may reasonably think that, besides the very daring and earnestness and persisting and importunity, there should be some secret binding and stooping of other men's spirits to such persons."

Bacon, in the same place, mentions other examples of fascination : for instance, "It is thought that some men, that are of an ill and melancholy nature, do incline the company into which they come to be sad and ill-disposed ; and contrariwise, that others, that are of a jovial nature, do dispose the company to be merry and cheerful. And again, that some men are lucky to be kept company with and employed : and others unlucky. Envy emitteth

raise and fortify the imagination : for if the imagination fortified have power, then it is material to know how to fortify and exalt it. And herein comes in crookedly⁵⁶ and dangerously a palliation of a great part of ceremonial magic. For it may be pretended that ceremonies, characters,⁵⁷ and charms do work, not by any tacit or sacramental⁵⁸ contract with evil spirits, but serve⁵⁹ only to strengthen the imagination of him that useth it ; as images are said by the Roman church to fix the cogitations and raise the devotions of them that pray before them. But for mine own judgement, if it be admitted that imagination hath power, and that ceremonies fortify imagination, and that they be used sincerely and intentionally for that purpose⁶⁰ ; yet I should hold them unlawful, as opposing to that⁶¹ first edict which God gave unto man, *In the sweat of thy brow shalt thou eat bread.* For they propound those noble effects, which God hath set forth unto man to be bought at the price of labour, to be attained by a few easy and slothful observances. Deficiencies in these knowledges I will report none, other than the general deficience, that it is not known how much of them is verity, and how much vanity.⁶²

some malign and poisonous spirit, which taketh hold of the spirit of another." Cp. *Essay 9.*

⁵⁶ *Crookedly*, indirectly, i.e. not as good in itself, but as a means to an end.

⁵⁷ *Characters*, letters. Mystical letters or signs, inscribed on scrolls, were often employed as charms.

⁵⁸ *Sacramental*, solemn. The 'Sacramentum' was the oath of allegiance and fidelity taken by the Roman soldier, when he enlisted.

⁵⁹ See p. 204, n. 19.

⁶⁰ He adds, by way of explanation, in the *De Aug.*, "if they be used merely as a physical remedy, and without any idea of inviting, by means of them, the assistance of spirits."

⁶¹ See p. 67, n. 10.

⁶² In the *De Aug.* Bacon adds some remarks on voluntary motion, and sensation, both of which he attributes to the action of 'the material soul.' He says that men should study the connection between this soul and the muscular system, and find out how so slight a substance as the material soul can put a massive body in motion. He then goes on to distinguish between *perception* and *sensation*. To perception he refers the action of bodies which are not endowed with sensation, such as the attraction of the magnet, and those actions of conscious beings which are performed automatically, such as digestion. By sensation he understands conscious affection. He condemns the doctrine of universally diffused sensation, which was held by Telesius and also by Campanella. "Men," he says, "have gone so far as to attribute sensation to all bodies, so that one is almost afraid to tear a branch from a tree, for

XII. Pp. 227—230. Bacon now proceeds to treat of mental and moral philosophy, which deal, respectively, with the intellect and the emotions and will. There is no special science which treats of the imagination. Poetry is not the science of the imagination but its product. The consideration of the power of the imagination belongs either to psychology, or to rhetoric. Indeed, the consideration of the imagination must be common to mental and moral philosophy, since the imagination is connected both with the mental and the moral faculties. Reason deliberates about objects represented in imagination, and the objects of our desire are also represented in imagination. The only difference is that imagination represents things to reason as *true*, and to the will as good. Nor does imagination always content itself with this subordinate function : for it sometimes dominates the reason. Mental philosophy, on account of its abstract character, is distasteful to most men : still it is the key to all knowledge, and is an excellent discipline for the mind. It comprehends the arts of invention, of judgment, of memory, and of communicating knowledge.

XII. I. The⁶³ knowledge which respecteth the faculties of the mind of man is of two kinds ; the one respecting his understanding and reason, and the other his will, appetite, and affection⁶⁴ ; whereof the former produceth position⁶⁵ or decree, the latter action or

fear that it should groan." He concludes the chapter with a discussion of the cause of light.

The student will notice that this § xi. contains all that Bacon has to say on the subject of psychology proper. The Baconian psychology, then, includes the theory of the duality of the soul, and the assignment to each soul of its proper functions—the theory of divination and fascination, and speaking generally, of the imagination—the division of the faculties of the higher soul into rational and moral—and the consideration of the faculties of the lower soul. Bacon, however, comes nearest to modern psychology in a passage in the *De Aug.*, where he says that the *origin* of the mental and moral faculties should be considered physiologically. There are certain psychological remarks scattered up and down the *Advancement*, as, for instance, in his remarks upon memory in § xv. and in his remarks on Ethics in § xx. seqq. His remarks on p. 11 and p. 158 involve the question of the limits of human knowledge in one direction. The question of the origin of knowledge is not separately discussed by him, though his opinion on the matter is given incidentally. In several places he asserts, cp. p. 151, § 1, that our knowledge is derived either from *revelation*, or from *experience* : but in his discussion on morals, he seems to think that we have some general moral *intuitions*, see xxv. 3. Lastly, the remarks, contained in § ix. upon the connexion of body and mind belong really to psychology.

⁶³ This is the second branch of the general science of mind. See p. 220, l. 1, sq.

⁶⁴ *Affection*, see p. 100, n. 64.

⁶⁵ *Position*, decision. *Decree*, judgement.

execution. It is true that the imagination is an agent or messenger, in both provinces, both the judicial and the ministerial.⁶⁶ For sense sendeth over to imagination before reason have judged: and reason sendeth over to imagination before the decree can be acted.⁶⁷ For imagination⁶⁸ ever precedeth voluntary motion. Saving that⁶⁹ this Janus⁷⁰ of imagination hath differing faces: for the face towards reason hath the print⁷¹ of truth, but the face towards action hath the print of good; which nevertheless are faces,

Like the faces of sisters.

Neither is the imagination simply and only a messenger; but is invested with, or at⁷² least wise usurpeth no small authority in itself, besides the duty of the message. For it was well said by Aristotle, *That the mind hath over the body that commandment, which⁷³ the lord hath over a bondman; but that reason hath over the imagination that*

⁶⁶ Ministerial, The emotions are the ministers of the reason, since it is through them that the decisions of the reason are acted upon. Reason may tell us that a certain thing will produce a certain result, but if the result is not desired by us, we shall not do the thing.

⁶⁷ Bacon expresses his meaning more clearly in the *De Aug.* "For sense sends over to the imagination all kinds of images, about which reason afterwards judges: but, before the decision of the reason is carried into execution, the reason sends back to the imagination the images which it has chosen and approved." For instance, a man has to choose between three or more objects. The objects are not actually present *now*, but he has seen them before, and can recall them in imagination (sense has handed over the impressions of them to imagination). Having recalled the objects to his mind, he decides that one of them is better, either absolutely, or relatively to some end, than the rest. Imagination then represents this object to him as desirable, and he determines to seek it.

⁶⁸ For imagination, &c., i.e. Before we proceed to do a thing, or seek a thing, the idea of the thing must be present to our minds.

⁶⁹ Saving that, &c. Before these words Bacon adds in the *De Aug.*, "So that the imagination is an instrument common both to the reason and the will."

⁷⁰ Janus, a Roman god, with two faces looking different ways.

⁷¹ Print, the impression. Cp. p. 98, n. 51. Good, desirable. Cp. p. 206, n. 23.

With this passage cp. Sidgwick's *Methods of Ethics*, Bk. I, ch. 3. "By saying, then, that 'Reason prescribes an end,' I mean to imply two things: first that in judging that 'this action ought to be done,' or, 'this end sought,' I am exercising the 'judgment of truth or falsehood: and, secondly, that this intellectual process is, or is inseparably combined with a motive to action.'

⁷² We should omit *at*. Cp. 'at unawares.' P. 16, l. 13.

⁷³ That commandment which, such authority as,

commandment which a magistrate hath over a free citizen; who may come also to rule in his turn. For we see that, in matters of faith and religion, we raise our imagination above our reason; which⁷⁴ is the cause why religion sought ever access to the mind by similitudes, types, parables, visions, dreams. And again, in all persuasions that are wrought by eloquence, and other impressions of like nature, which do paint and disguise the true appearance of things, the⁷⁵ chief recommendation unto reason is from the imagination. Nevertheless, because I find not any science that doth properly or fitly pertain to the imagination, I see no cause to alter the former division. For as for poesy, it is rather a pleasure or play of imagination, than a work or duty thereof. And if it be a work, we speak not now of such parts of learning as the imagination produceth, but of such sciences as handle and consider of the imagination. No more than we shall speak now of such knowledges as reason produceth (for that extendeth to all philosophy), but of such knowledges as do handle and inquire of the faculty of reason: so as poesy had his⁷⁶ true place. As for the power of the imagination in nature, and the manner of fortifying the same, we have mentioned it⁷⁷ in the doctrine *Concerning the Soul*, whereunto most fitly it belongeth. And lastly, for imaginative or insinuative reason, which is the subject of rhetoric, we think it best to refer it to the arts of reason. So therefore we content ourselves with the former division, that human philosophy, which respecteth the faculties of the mind of man, hath two parts, rational and moral.

2. The part of human philosophy which is rational, is of all knowledges, to the most wits, the least delightful, and seemeth but a net of subtlety and spinosity.⁷⁸ For as it was truly said, that knowledge is *the food of the mind*; so in the nature of men's appetite

⁷⁴ He adds in the *De Aug.*: "Not that the divine illumination has its seat in the imagination—it resides rather in the very citadel of the intellect—but the divine grace uses the imagination as a means of illumination, just as it uses the will to lead us to virtue." See p. 146, § 4.

⁷⁵ This is more clearly explained in the *De Aug.* "When a man, by the arts of speech, soothes or inflames, or carries away the minds of others, he does it by so exciting their imagination that it gets the better of their reason."

⁷⁶ His, we should now say its.

⁷⁷ We have mentioned it, p. 224, § 3.

⁷⁸ Spinosity, difficulty: literally, thorniness.

to this food, most men are of the taste and stomach of the Israclites⁷⁹ in the desert, that would fain have returned *to the flesh pots*, and were weary of manna; which, though it were celestial, yet seemed less nutritive and comfortable.⁸⁰ So generally men taste well knowledges that are drenched in flesh and blood,⁸¹ civil history,⁸² morality, policy, about the which men's affections, praises, fortunes do turn and are conversant. But this same *dry light*⁸³ doth parch and offend most men's watery⁸⁴ and soft natures. But to speak truly of things as they are in worth, rational knowledges are the keys of all other arts: for as Aristotle saith aptly and elegantly, *That the hand is the instrument of instruments, and the mind is the form of forms*; so these be truly said to be the art of arts. Neither do they only direct, but likewise confirm and strengthen: even as the habit of shooting doth not only enable to shoot a nearer shoot,⁸⁵ but also to draw a stronger bow.

3. The arts intellectual are four in number; divided according to the ends whereunto they are referred: for man's labour is to invent that which is sought or propounded; or to judge that which is invented; or to retain that which is judged; or to deliver over that which is retained. So as the arts must be four: art of inquiry or invention: art of examination or judgement: art of custody or memory: and art of elocution or tradition.

XIII. Pp. 231—247. Bacon now proceeds to consider the first of the intellectual arts, viz., the art of invention, which includes the art of making discoveries in science, and the art of discovering arguments. Of these the first is wanting, and therefore it is no wonder that no discoveries are made. In

⁷⁹ When the Jews were in the Arabian desert on their way from Egypt to Canaan, they fell short of food. God fed them miraculously with food called manna, which dropped from heaven: "and the Israelites wept and said, who shall give us flesh to eat? We remember the fish which we did eat in Egypt freely: the cucumbers, and the melons, and the leeks, and the onions, and the garlic: but now our soul is dried away: there is nothing at all, beside this manna, before our eyes."—*Numbers*, ch. xi.

⁸⁰ *Comfortable*, strengthening, cp. p. 108, n. 21.

⁸¹ *Drenched in flesh and blood*, i.e. which deal with human passions. The metaphor, of course, is suggested by the flesh, which the Israelites sighed for.

⁸² *Civil history*, p. 129, n. 78.

⁸³ *Dry light*, see p. 10, n. 50.

⁸⁴ *Watery*, weak. See p. 40, n. 55.

⁸⁵ *To shoot a nearer shoot*, to go nearer the mark.

medicine, for instance, it is acknowledged that nearly every thing that is known was learnt either by chance, or by observing the habits of beasts: little has been done by reason or method. The induction of the logicians is absolutely worthless, for they generalize on insufficient evidence. Indeed, they not only do not seek for evidence, but when they meet with evidence which contradicts their theories, they maintain their theories in spite of the evidence. Even granting that some true propositions have been established inductively, yet no correct inference *in physics* can be deduced from them. The syllogisms may be faultless and irrefutable, but they are worthless because men's scientific conceptions are inadequate and incorrect. We can hardly wonder that some philosophers have doubted the possibility of attaining knowledge at all. Knowledge, however, is attainable by those who will take the trouble to observe accurately and reason correctly.

By the art of discovering arguments Bacon means the art of remembering and applying knowledge, which we already possess, when occasions for applying it arise. Cp. p. 114, n. 70. This is not, strictly speaking, invention, though it has obtained the name. This ready application of knowledge may be attained either by *preparation* or *suggestion*, i.e. we may either store our minds with arguments on subjects which are frequently discussed—or some thing which we have learnt may be made, by association, to call up other things, or may serve to guide us in further inquiries. For the art of discovery advances with discoveries.

XIII. I. Invention⁸⁶ is of two kinds much differing: the one of arts and sciences, and the other of speech and arguments. The former of these I do report deficient; which seemeth to me to be

⁸⁶ The first kind of *invention* and the *art of judgement* correspond to what we should call logic. They include Induction and Deduction, and the consideration of the fallacies and of the applicability of the different logical methods in different subject matter. Bacon's remarks on the second kind of invention are mere practical suggestions; we should not now include 'precepts for the ready use of knowledge' in logic, though they found a place in the logic of the schools. His remarks on memory also contain only practical rules for strengthening the memory, and therefore have no place in mental philosophy. At the same time we must remember that his remarks both on general topics and on memory imply, though he was not aware of it, the psychological theory of the association of ideas, viz., that when two things have been experienced or thought of together, the idea of the one suggests the idea of the other, with a force proportioned to the vividness and frequency with which they have been combined in experience.

The art of tradition, so far as it includes the consideration of scientific method belongs to logic, and Bacon only follows the example of the Schools in including the mere art of teaching under the head of logic. But grammar, the history of writing, and the theory of teaching would not now find a place in Logic. In the *De Aug.* Bacon gives the general name of Logic to all these four arts.

such a deficiency as if, in the making of an inventory touching the state⁸⁷ of a defunct, it should be set down that there is no ready money. For as money will fetch all other commodities, so this knowledge is that which should purchase all the rest. And⁸⁸ like as the West Indies had never been discovered if the use of the mariner's needle had not been first discovered, though the one be vast regions, and the other a small motion; so it cannot be found strange if sciences be no further discovered, if the art itself of invention⁸⁹ and discovery hath been passed over.

2. That this part of knowledge is wanting, to my judgement standeth plainly confessed; for first, logic⁹⁰ doth not pretend to invent sciences, or the axioms of sciences, but passeth it over with a *we must trust to experts in the several arts.* And Celsus acknowledgeth it gravely,⁹¹ speaking of the empirical and dogmatical sects of physicians, *That medicines and cures were first found out, and then after the reasons and causes were discoursed⁹²; and not the causes first found out and by light from them the medicines and cures discovered.* And Plato in his *Theaetetus*⁹³ noteth well, *That particulars are*

⁸⁷ *The state*, the property.

⁸⁸ Cp. p. 193, l. 1.

⁸⁹ *The art of invention.* It is incorrect to call Logic the art of invention, for it implies that any one who knows the art may make discoveries. This is what Bacon did think: but I have explained, on p. 177, n. 59, that there can be no art of invention.

⁹⁰ It is the business of the different sciences to supply the materials of argument. Logic, i.e. syllogism, only decides whether the conclusion follows from the premises. Arist. *Anal. Pr.* 1. 30. The saying which Bacon quotes was taken by the Schoolmen as an instance of the *Topics*, or *general principles of probability*, which formed the basis of Dialectical or probable syllogisms. For example, it is a *topic* with reference to testimony that 'we must believe experts in their own arts,' from which we may elicit the following probable syllogism; what Pythagoras says must be allowed to be true; he said that souls migrate, therefore we must allow the truth of the doctrine. The major premiss is proved by the *topic* above quoted. See Mansel's *Aldrich*, p. 115. For the meaning of *axioms*, see p. 122, n. 31.

⁹¹ This is not what Celsus himself confesses in the passage to which Bacon apparently refers: but what he represents the empirics as urging against the Rationalists. E. For *Celsus*, see p. 212, n. 69.

⁹² *Discoursed*, discussed.

⁹³ Bacon is probably referring to the *Philebus*, p. 17, where Plato makes the relation of letters to syllables typical of the nature of knowledge. The *middle propositions* are those which in point of generality stand midway between individual instances and the widest propositions of science. It is quite true

infinite, and the higher generalities give no sufficient direction: and that the pith of all sciences, which maketh the artsman⁹⁴ differ from the inexpert, is in the middle propositions, which in every particular knowledge are taken from tradition and experience. And therefore we see, that they which discourse of the inventions and originals of things refer them rather to chance than to art, and rather to beasts, birds, fishes, serpents, than to men.

*A branch of healing dittany she brought,
Which in the Cretan fields with care she sought,
Rough is the stem, which woolly leaves surround,
The leaves with flowers, the flowers with purple crown'd;
Well known to wounded goats; a sure relief,
To draw the pointed steel, and ease the grief.*

So that it was no marvel (the manner of antiquity being to consecrate inventors) that the Egyptians had so few human idols in their temples, but almost all brute :

*Anubis and each monster strange,
That Egypt's land reveres, &c.*

And if you like better the tradition of the Grecians, and ascribe the first inventions to men, yet you will rather believe that Prometheus first stroke⁹⁵ the flints, and marvelled at the spark, than that when he first stroke the flints he expected the spark: and therefore we see the West Indian Prometheus⁹⁶ had no intelligence with the European, because of the rareness with them of flint, that gave the first occasion. So as it should seem, that hitherto men are rather beholden to a wild goat for surgery, or to a nightingale for music, or to the ibis for

that they are the most valuable of all propositions. A man, for instance, may know that what is right for one man is right for all men in similar circumstances. This is a *higher generality* in Ethics. For practical guidance it is useless. Or he may know the laws of the several virtues. These are the *middle propositions* of Ethics: and the man who knows them will be an *artsman* in conduct: he will know how to conduct himself. Or lastly, he may know that certain individual acts are right. This knowledge will be of little use to him: for he has no *principle* by which to regulate his conduct in cases which are beyond his experience.

⁹⁴ *The artsman*, the expert.

⁹⁵ *Stroke*, struck. Prometheus—literally, the prudent one—according to the Greek mythology taught men the use of fire, which he is said to have stolen from Jupiter.

⁹⁶ *The West Indian Prometheus*, i.e. the man who discovered fire in the West Indies. There fire is obtained by rubbing pieces of wood together.

some part of physic,⁹⁷ or to the pot-lid that flew open for artillery,⁹⁸ or generally to chance or anything else than to logic for the invention of arts and sciences. Neither is the form of invention which Virgil describeth much other :

That practice might by degrees hammer out the arts.

For if you observe the words well, it is no other method than that which brute beasts are capable of, and do put in ure⁹⁹; which is a perpetual intending¹ or practising some one thing, urged and imposed by an absolute necessity of conservation of being. For so Cicero saith very truly, *Practice applied to one thing often accomplishes more than nature and art.* And therefore if it be said of men,

*What cannot endless labour urged by need?**

it is likewise said of beasts, *Who taught the parrot to say how do you do?* Who taught the raven in a drowth to throw pebbles into an hollow tree, where she spied water, that the water might rise so as she might come to it? Who taught the bee to sail through such a vast sea of air, and to find the way from a field in flower a great way off to her hive? Who³ taught the ant to bite every grain of corn that she burieth in her hill, lest it should take root and grow? Add then the word *to hammer out*, which importeth the extreme difficulty, and the word *by degrees*, which importeth the extreme slowness, and we are where we were, even amongst the Egyptians' gods⁴; there being little

⁹⁷ *To the ibis.* The bird uses salt water as a clyster.

⁹⁸ Wright quotes from Pancirollus' account of the invention of guns. "All histories do agree in this, that a German was author of this invention, but whether his name be known, or whether he was a monk of Friburg, Constantine Ancilzen, or Bertholdus Schwarz (as some call him), a Monastick too, is not so very certain. 'Tis said he was a chymist, who sometimes for medicines kept Powder of Sulphur in a mortar, which he covered with a stone. But it happened one day as he was striking fire, that a spark accidentally falling into it brake out into a flame, and heaved up the stone. The man being instructed by this contingency, and having made an iron pipe or tube, together with powder, is said to have invented this engine."

⁹⁹ *Ure*, use.

¹ *Intending*, see p. 208, n. 41.

² This quotation is from Virgil, *Georgic.*, i. 145: and the next one from the Prologue to Persius' Satires.

³ Ellis says that this notion must have originated with some one who had observed ants in the act of tearing the integument in which the young ant is enclosed, in order to facilitate its exit.

⁴ *Amongst the Egyptians' gods*, see p. 233, l. 14.

left to the faculty of reason, and nothing to the duty of art, for matter of invention.

3. Secondly,⁵ the induction which the logicians speak of, and which seemeth familiar with Plato, whereby the principles of sciences may be pretended to be invented, and so the middle propositions⁶ by derivation from the principles; their form of induction, I say, is utterly vicious and incompetent: wherein their error is the fouler, because it is the duty of art⁷ to perfect and exalt nature; but they contrariwise have wronged, abused, and traduced⁸ nature. For he that shall attentively observe how the mind doth gather this excellent dew of knowledge, like unto that which the poet⁹ speaketh of, *the divine gift of aerial honey*, distilling and contriving it out of particulars natural and artificial, as the flowers of the field¹⁰ and garden, shall find that the mind¹¹ of herself by nature doth manage and act an induction much better than they describe it. For to conclude upon an enumeration of particulars, without instance contradictory,¹² is no conclusion, but a conjecture; for who can

⁵ With this passage cp. p. 42, n. 73. Bacon is never weary of protesting against the habit of generalising without sufficient evidence. The great merits of his own method he conceived to be—first, that it led to absolutely certain conclusions: secondly, that it could be employed by all men with equal success.

⁶ *The middle propositions*, see p. 232, n. 93. *Derivation*, deduction.

⁷ *It is the duty of art, &c.*, see p. 120, n. 17.

⁸ *Traduced*, slandered. Cp. p. 27, n. 49.

⁹ *The poet*, Virgil. *Georgic* iv. 1.

¹⁰ *The flowers of the field*, correspond to natural phenomena; the *flowers of the garden* to phenomena produced by experiment.

¹¹ A correct theory of logic is only a statement of the rules which the mind naturally, though unconsciously, observes in reasoning.

¹² *Without instance contradictory*, i.e. if they do not happen to have met with a negative instance. Bacon is condemning *induction by simple enumeration*, i.e. the practice of generalising from our experience, without considering whether our experience warrants the generalisation or not. No amount of instances will warrant an induction, unless the instances are *representative* ones. See p. 222, n. 31, and cp. xiv. 9. According to Bacon, no induction was warranted, unless *all* the instances had been examined. See p. 166, n. 16, and p. 240, n. 43. In the former of these two notes I have observed that a theory of scientific method cannot precede science. It is therefore somewhat unfair to reproach the Greeks with the defects of their inductive logic. The Greeks, moreover, had not the mechanical appliances, which we have, to assist them in making observations, nor the same means of experimenting which we have. It was, therefore, difficult for them to get

assure¹³ (in many subjects) upon those particulars which appear of a side,¹⁴ that there are not other on the contrary side which appear not? As¹⁵ if Samuel should have rested upon those sons of Issay which were brought before him, and failed of¹⁶ David which was in the field. And this form (to say truth) is so gross, as it had not been possible for wits so subtle as have managed these things to have offered it to the world, but that they hasted to their theories and dogmaticals,¹⁷ and were imperious and scornful toward particulars; which their manner was to use but as *lictores* and *viatores*, for sergeants and whifflers,¹⁸ to push the crowd aside, to make way and make room for their opinions, rather than¹⁹ in their true use and service. Certainly it is a thing may touch a man with a religious wonder, to see how the footsteps of seduement are the very same²⁰ in divine and human

instances, even if they wished to do so. This being so, it was only natural that they should fall into the habit of generalising without sufficient evidence. This does not, of course, lessen the intrinsic value of Bacon's remarks, which still forms the basis of every correct theory of induction. See Fowler's *Inductive Logic*, ch. 3. We must also bear in mind that although Aristotle either neglected or, through force of circumstances, was unable to act up to his teaching, still he distinctly formulated the principle of induction, and insisted upon a careful study of facts, and an establishment of general principles by means of induction.

¹³ *Assure*, be sure

¹⁴ *Of a side*, on one side.

¹⁵ The Jewish prophet Samuel was told by God to choose a king from among the sons of Issay. Issay brought seven of his sons before him: the eighth, who happened to be the one that was to be chosen king, was away in the fields. Samuel asked Issay if he had any more sons beside the seven. He would have made a mistake if he had inferred that the seven were all that he had to choose from. In like manner do those men err, who are content with the instances which nature spontaneously presents, instead of asking her for more.

¹⁶ *Had failed of*, had not met with.

¹⁷ *Dogmaticals*, dogmas.

¹⁸ *Whifflers*, men whose business it is to clear the way for others, as the *lictors* preceded and cleared the way for the Roman magistrates. The business of a sergeant—or, as the Romans called him, a *viator*—was to summon persons before the magistrate.

¹⁹ *Rather than*, &c., i.e. instead of carefully weighing them, with a view to arriving at the truth.

²⁰ *The footsteps of seduement are the same*, men are led into error in precisely the same way, viz., by pride. Bacon refers to the saying of Christ—" Except ye be converted, and become as little children, ye shall not enter into the

truth : for as in divine truth man cannot endure to become as a child ; so in human, they reputed²¹ the attending the inductions (whereof we speak) as if it were a second infancy or childhood.

4. Thirdly, allow some principles or axioms²² were rightly induced,²³ yet nevertheless certain it is that middle propositions cannot be deduced from them in subject of nature²⁴ by syllogism, that is, by touch²⁵ and reduction of them to principles in a middle term. It is true that in sciences popular, as moralities, laws, and the like, yea, and divinity (because it pleaseth God to apply himself to the capacity of the simplest), that form may have use ; and in natural philosophy likewise, by way of argument or satisfactory²⁶ reason,

kingdom of heaven. Whosoever therefore shall *humble himself as this little child*, the same is greatest in the kingdom of heaven."

²¹ *They reputed, &c.*, This is explained more clearly in the Latin to mean "that they think themselves so far advanced that they are too proud any longer to study the very elements of inductions." Men must follow the teaching of nature with child-like simplicity, and not try to impose their own theories upon nature.

²² *Axioms*, p. 122, n. 31.

²³ *Induced*, established by induction.

²⁴ *In subject of nature*, with reference to physical phenomena.

²⁵ *By touch, &c.*, i.e. by testing them and showing, through the intervention of a middle term, that they follow from the major premiss.

²⁶ *Satisfactory*, p. 178, n. 63. *But the subtlety, &c.* Bacon means to say that Nature does not necessarily act in a certain way, because we can prove syllogistically that she must do so, since our conceptions of natural phenomena and processes may be inadequate, and our judgments therefore incorrect. We may, for instance, demonstrate that a body cannot act where it is not ; but the law of attraction is none the less true. Every single conception in physical science must be the result of a careful generalisation—it is useless, for instance, to argue about metals, if our conception of metals excludes some of the properties which metals actually possess : every proposition in physics must be based on a sound induction. Otherwise we shall find that the knowledge of the subtle or complex processes of nature has escaped us. In the moral sciences, the case is different. Certain premisses being granted, we can demonstrate certain results. Fowler considers that the passages, in which Bacon allows the legitimacy of syllogistic reasoning in the moral and political sciences, are ironical. We may perhaps, he says, represent his thoughts somewhat as follows : 'In morals, politics, logic, and sciences of that sort people care so little for truth and so much for disputation and victory, that we may leave them to their own method. If they wish for truth in these subjects they *must* conduct their enquiries according to the new method.' See his notes on *Nov. Org.*, i. 29, and 127. I doubt whether this view is true here. The language in the text points clearly to the conclusion that it is only in *natural philosophy*

which procures assent, but produces no result: but the subtlety of nature and operations will not be enchain'd in those bonds. For arguments consist of propositions, and propositions of words, and words are but the current tokens or marks of popular notions of things; which notions,²⁷ if they be grossly and variably²⁸ collected out of particulars, it is not the laborious examination either of consequences or arguments, or of the truth of propositions, that can ever correct that error, being (as the physicians speak) in the first digestion.²⁹ And therefore it was not without cause, that so many excellent philosophers became Sceptics and Academics,³⁰ and denied any certainty of knowledge or comprehension; and held opinion that the

that syllogism is employed for the mere sake of disputation and victory in argument. Bacon means, I think, that in theology and the moral sciences the conceptions are simpler, and the phenomena less shifting, than in nature, and that, therefore, an earlier and more general application of deductive reasoning is possible.

By nature and operations, Bacon means 'the processes of nature.'

Bacon's condemnation of the syllogism is somewhat too sweeping. It was only natural that he should condemn it, for he saw that science could not progress without a sound method of induction, which it was his great object to supply. A theory of *induction* was, it seemed to him, the great want of the times. The amount of truth contained in his remarks is this: the function of syllogism is to develop the consequences of premisses established inductively. If the premisses are false, then syllogistic reasoning is worthless. In every science, the primary laws of the phenomena must be established by induction: when this has been done, then the science naturally and properly becomes deductive. See p. 184, n. 97.

²⁷ Bacon's remarks about the necessity of adequate conceptions are perfectly true. Definition, and the formation of conceptions must always find a place in a sound theory of logic. Perhaps no part of Mill's Logic would be more interesting, or more useful to students generally, than his chapters on Language.

The construction, 'which nations . . . it is not' occurs again on p. 218, l. 14.

²⁸ *Grossly and variably*, carelessly and at random.

²⁹ After *digestion*, he adds in the Latin 'and not remedied by the processes which follow.' If we start with wrong conceptions, no amount of care in the reasonings which follow will remedy their original defect. For 'speak,' see p. 49, n. 9.

³⁰ Bacon alludes to two schools of philosophy in Greece. The distinction between the two seems to have been that the Scepticism of the Academics was more complete. The Sceptics held that it is impossible to say whether we know anything or not. The Academics held that the only certain proposition is that nothing can be known.

knowledge of man extended only to appearances and probabilities. It is true that in Socrates⁸¹ it was supposed to be but a form of irony, *under pretence of ignorance he affected knowledge*: for he used to disable⁸² his knowledge, to the end to enhance his knowledge: like the humour⁸³ of Tiberius in his beginnings, that would reign, but would not acknowledge so much. And in the later Academy, which Cicero embraced, this opinion also of *acatalepsia*⁸⁴ (I doubt) was not held sincerely: for that all those which excelled in copie⁸⁵ of speech seem to have chosen that sect, as that which was fittest to give glory to their eloquence and variable discourses⁸⁶; being rather⁸⁷ like progresses of pleasure, than journeys to an end. But⁸⁸ assuredly many scattered in both Academies did hold it in subtlety and integrity. But here was their chief error; they charged the deceit upon the senses; which in my judgement (notwithstanding all their cavillations)⁸⁹ are very sufficient to certify and report truth, though not always immediately, yet by comparison, by help of instrument, and by producing⁹⁰ and urging such things as are too subtle for the sense to some effect comprehensible by the sense, and other like assistance. But they ought to have charged the deceit upon the weakness of the intellectual

⁸¹ See p. 61, n. 81. After *ignorance*, Bacon adds in the *De Aug.*: "By denying that he knew things which he manifestly did know, he thought that he would get the reputation of knowing things which he really did not know."

⁸² *To disable*, to depreciate.

⁸³ *The humour*, p. 72, n. 46. Tiberius was the successor of Augustus. For his affected unwillingness to take the supreme power into his own hands, see Tac. *Ann.* i., ch. 7 and 11.

⁸⁴ *Acatalepsia*, a Greek word, used by the Academics to denote the impossibility of attaining certain knowledge.

⁸⁵ *Copie*, p. 40, n. 52.

⁸⁶ *Variable discourses*, i.e. the arguments which they urged on both sides of a question.

⁸⁷ *Being rather*, &c. In the *De Aug.* it is—"So that, for the sake of amusing themselves, they digressed into certain pleasant paths, leaving the straight road which leads to truth, and which they ought to have followed."

⁸⁸ In the *De Aug.* he says that the Sceptics were more sincere than the Academics. For 'in subtlety,' which is not very intelligible, he says in the *De Aug.* 'in simplicity.'

⁸⁹ *Cavillations*, p. 47, n. 91.

⁹⁰ *Producing*, used in its literal sense of 'leading on.' Cp. p. 172, n. 35. As an instance of an aid to the senses, such as Bacon here alludes to, we may take the air-pump, which manifests the weight of the air, which is itself not perceptible.

powers, and upon the manner of collecting⁴¹ and concluding upon the reports of the senses. This I speak, not to disable the mind of man, but to stir it up to seek help : for no man, be⁴² he never so cunning or practised, can make a straight line or perfect circle by steadiness of hand, which may be easily done by help of a ruler or compass.

5. This⁴³ part of invention, concerning the invention of sciences,

⁴¹ *Collecting*, drawing inferences. For *upon*, we should say *from*.

⁴² *Be he never so cunning*, no matter how skilful he may be. *Cunning* is used here in its literal sense of 'knowing' or 'clever.' At the end of this paragraph he adds in the *De Aug.* a sentence to the effect that—"the great object which I am striving to attain is to discover an art which shall make the mind of man a match for nature—an art of indication and direction, which shall reveal and bring to light all other arts with their principles and works." He refers of course to his method of discovering forms. See p. 232, n. 89.

⁴³ See p. 186, n. 11. It is of the utmost importance that the student should understand clearly what Bacon means by the 'experience committed to writing' and the 'interpretation of nature'—what is their relation to one another—and what is the place which they occupy in his system. The *experience committed to writing* was to be a complete register of all natural phenomena, as ascertained either by observation or experiment. This would constitute a complete Natural History, in the sense in which Bacon understands the term. (See p. 120, § 3.) Bacon, curiously enough, thought that if a sufficient number of men were engaged in this work, it might be completed within the space of one man's life. His own contributions to this work are to be found in his *Natural History*, Ellis and Spedding's Edn., Vol. 2, p. 339, sq., and in his *Natural and Experimental History*, ibid., Vol. 5, p. 137, sq. When this register of phenomena was completed, it would remain only to apply the *interpretation of nature*, i.e. his own method of discovering forms, and the sum of human knowledge would be complete. Thus the 'experience committed to writing' contains simply observations and experiments, the 'interpretation of nature' uses those observations and experiments as the means of establishing the causal laws of phenomena. These laws, he says, may, in their turn, suggest new experiments. In order to discover the form, or cause of any quality, all that would be necessary would be to collect all the instances of the quality from the 'experience committed to writing,' and to arrange these in three tables, according to the three Criteria mentioned on p. 166, n. 16. Cp. p. 125, n. 54.

The Natural History is, in Bacon's opinion, much more important than the method : for the method cannot possibly be applied with success, till the Natural History is complete ; but when the Natural History is completed, any one can apply the method. See p. 177, n. 59. The student will notice how purely mechanical was the method of discovery, as conceived by Bacon. It is not true that there is any method which can be applied with equal success by all. See p. 232, n. 89. Before the end of his life, also, Bacon had probably begun to

I purpose (if God give me leave) hereafter to propound, having

seen that no complete enumeration ever could be made of the phenomena of nature. Human knowledge is and must always be progressive. Lastly, the business of observing and experimenting cannot be *completely* separated from that of interpreting, for this reason that, observations and experiments are generally suggested by hypotheses. Observation and experiment are generally subsequent, and not prior to, interpretation. At the same time we must remember that the task of observation would be greatly facilitated by the 'special topics,' or directions, mentioned on p. 246, § 10. See Spedding's Preface to the *Parasceue*, *Ellis and Spedding's Edn.*, Vol. i., p. 388. Bacon remarks in the *De Aug.* that the making of experiments for the 'experience committed to writing' requires only a certain natural sagacity: similarly, on p. 187, above, he said that it might be managed by an empiric. He lays down the following rules to guide men in making experiments:—

I. To vary the experiment—

(a) By varying the material: e.g. after making paper of rags, to try what other materials it may be manufactured from.

(b) By varying the instrument: e.g. after finding that the sun's rays will burn inflammable material, if concentrated on it through a burning glass, to try whether any heat can be obtained, in the same way, from the moon's rays.

(c) To vary the quantity: e.g. to see whether a leaden ball of 10 lbs. weight falls twice as fast as one of 5 lbs. weight.

II. To continue the experiment—

(a) By repeating it: e.g. Spirits of wine is stronger than the wine from which it was distilled. Distil the spirits of wine itself, and see whether it will gain proportionately in strength.

(b) By extending it: e.g. Gold absorbs quicksilver: see whether it absorbs it into itself in such a way that its weight is increased, though its bulk remains the same.

III. To transfer the experiment—

(a) By artificially producing a natural phenomenon, as in electrical experiments.

(b) By trying experiments, that have succeeded in one art, in another: e.g. try whether an instrument can be invented to assist the hearing, as spectacles assist the sight.

(c) By transferring experiments from one branch of an art, to another part of the same art: e.g. try whether experiments made in the healing branch of medicine cannot be applied in that branch of the science which deals with the prolongation of life.

IV. To invert the experiment: e.g. Heat rises, when diffused. Try whether cold sinks, when diffused.

V. To force an experiment: i.e. to try whether, and how, functions of objects may be suspended: e.g. try whether, under any conditions, a magnet loses its power of attraction.

digested it into two parts⁴⁴; whereof the one I term *experience committed to writing*, and the other *interpretation of nature*: the former being but a degree⁴⁵ and rudiment of the latter. But I will not dwell too long, nor speak too great upon a promise.

6. The invention of speech or argument is not properly an invention: for to invent is to discover that we know not, and not to recover or resummon⁴⁶ that which we already know: and the use of this invention is no other but, out of the knowledge whereof our mind is already possessed, to draw forth or call before us that which may be pertinent to the purpose which we take into our consideration.⁴⁷ So as to speak truly, it is no invention, but a remembrance or suggestion, with an application; which is the cause why the schools do place it after judgement,⁴⁸ as subsequent and not precedent. Nevertheless, because we do account it a chase⁴⁹ as well of deer in

VI. To apply an experiment: e.g. Meat rots sooner in some climates than in others. Try whether the climates, in which it remains good for the longest time, are more healthy than those, in which it rots soonest.

VII. To connect experiments: e.g. Late roses may be obtained either by nipping the early buds, or by exposing the roots of the trees. Try both these processes together.

VII. An experiment may be tried, simply because it has never been tried before. Experiments of this kind *may* be valuable.

⁴⁴ The exposition of the 'interpretation of nature,' so far as it was completed by Bacon, is contained in the *Novum Organum*. It is perhaps worth while to direct the student's attention to the meaning of the title of the book. Aristotle's logical treatises were collected, and published under the general name of the *organon* or *instrument*. Bacon claimed to be the inventor of a new logic, which he therefore called the *new instrument*.

⁴⁵ *But a degree*, because, as I have explained above, it was only a preliminary to the method. The *Novum Organum* was published in 1620.

⁴⁶ *To recover or resummon*, to recall to mind or recollect.

⁴⁷ After *consideration*, Bacon adds in the *De Aug.*: "For a man, who has little or no knowledge of the subject under discussion, will not be profited by any system of directions: on the other hand, a man, whose mind is stored with knowledge pertinent to the subject in hand, will be able to recollect and apply his knowledge, even without any system of directions to help him, *but he will not be able to do it readily.*"

⁴⁸ After *judgement*, because all knowledge, which we now possess, must be the result of former judgements.

⁴⁹ *A chase*, he adds in the *De Aug.* 'and a discovery.' Bacon means to say that, just as we are said to hunt animals, though they are confined within a

an inclosed park as in a forest at large,⁵⁰ and that it hath already obtained the name,⁵¹ let it be called invention : so as it be perceived and discerned, that the scope and end of this invention is readiness and present use of our knowledge, and not addition or amplification thereof.

7. To procure this ready use of knowledge there are two courses, preparation and suggestion. The former of these seemeth scarcely a part of knowledge, consisting rather of diligence than of any artificial erudition. And herein Aristotle wittily, but hurtfully, doth deride the Sophists⁵² near his time, saying, *They did as if one that professed the art of shoe-making should not teach how to make up a shoe, but only exhibit in a readiness a number of shoes of all fashions and sizes.* But yet a man might reply, that if a shoemaker should have no shoes in his shop, but only work as he is bespoken, he should be weakly customed.⁵³ But our Saviour, speaking of divine knowledge, saith, *That the kingdom of heaven is like a good⁵⁴ householder, that bringeth forth both new and old store :* and we see the ancient writers of rhetoric do give it in precept,⁵⁵ that pleaders should have the places,⁵⁶ whereof they have most continual use, ready handled in all the variety that may be⁵⁷; as that,⁵⁸ to speak for the literal interpretation

certain space, so we may be said to hunt for and discover knowledge, though it is already latent in our minds.

⁵⁰ At large, not enclosed.

⁵¹ It hath already obtained the name, viz., in the Logic of the Schools, in which Invention and Teaching were treated of, under the name of method, as an appendix to Logic. The fourfold division of 'the arts intellectual' which Bacon adopts is borrowed from Ramus.

⁵² *The Sophists*, p. 123, n. 43. The point of Aristotle's remark is, that the Sophists supplied their pupils with arguments ready made, instead of teaching them to think out arguments for themselves.

⁵³ Be weakly customed, i.e. find few customers.

⁵⁴ What Christ really said was "That every scribe which is instructed unto the kingdom of heaven is like," &c., i.e. A man who knows the truth about religion will have his mind stored with arguments in support of it, besides being able to adduce original arguments, if required. Bacon means to say that, in this respect, there should be no difference between religious and secular knowledge.

⁵⁵ Give it in precept, advise.

⁵⁶ The places, the subjects. See p. 25, n. 37.

⁵⁷ In all the variety that may be, i.e. with arguments for and against. Cp. p. 239, n. 36.

⁵⁸ As that, for instance.

of the law against equity,⁵⁹ and contrary; and to speak for presumptions and inferences against testimony, and contrary. And Cicero, himself, being broken unto it⁶⁰ by great experience, delivereth it plainly, that whatsoever a man shall have occasion to speak of (if he will take the pains), he may have it in effect premeditate⁶¹ and handled *in outline*. So that when he cometh⁶² to a particular he shall have nothing to do, but to put to names, and times, and places, and such other circumstances of individuals.⁶³ We see likewise the exact diligence of Demosthenes; who, in regard of⁶⁴ the great force that the entrance and access into causes hath to make a good impression, had ready framed a number of prefaces for orations and speeches. All which authorities and precedents may overweigh Aristotle's opinion, that⁶⁵ would have us change a rich wardrobe for a pair of shears.

8. But the nature of the collection of this provision or preparatory store, though it be common both to logic and rhetoric,⁶⁶ yet having made an entry of it here, where it came first to be spoken of I⁶⁷ think fit to refer over the further handling of it to rhetoric.

9. The other part of invention, which I term suggestion, doth assign and direct us to certain marks, or places,⁶⁸ which may excite

⁵⁹ *Equity*, exactly equivalent to what we should call the *spirit*, as opposed to the *letter* of the law. *Contrary*, viz., for the spirit as against the letter. Cp. l. 2. An argument on either side is given below, xviii. 8.

⁶⁰ *Broken unto it*, taught.

⁶¹ *Premeditate*, p. 114, n. 69.

⁶² *When he cometh &c.* i.e. when an occasion arises for applying his argument.

⁶³ *Circumstances of individuals*, special circumstances: details.

⁶⁴ *In regard of*, on account of. For '*entrance and access into*', we should now say '*introduction*'.

⁶⁵ i.e. who would have us invent arguments as we required them, instead of preparing them beforehand. P. 243, l. 9: cp. xviii. 7.

⁶⁶ *Though it be common, &c.* The object of 'preparation' is success in rhetoric: but the ability to deduce 'the consequences which flow from two contradictory propositions is an aid to the attainment of knowledge generally, and is taught by logic.

⁶⁷ See xviii. 7, sq.

⁶⁸ *Marks, or places*, i.e. truths which we know already, and which may stand as it were, as guide posts in the mind, either pointing to and *suggesting* other truths which we know, or pointing to and *suggesting* the way to the attainment of truths which, as yet, we do not know. The 'art of suggestion' is the art of making our knowledge serve this double purpose. What Bacon says in

our mind to return and produce such knowledge as it hath formerly collected, to the end we may make use thereof. Neither is this use (truly taken⁷⁰) only to furnish argument to dispute probably⁷⁰ with others, but likewise to minister unto⁷¹ our judgement to conclude aright within ourselves. Neither may these places serve only to apprompt our invention,⁷² but also to direct our inquiry. For a faculty of wise interrogating is half a knowledge. For as Plato saith, *Whosoever seeketh, knoweth that which he seeketh for in a general notion⁷³ : else how shall he know it when he hath found it?* And

these two sections is perfectly true. Every truth learnt and registered by the mind may be made to recall other truths, and to guide us in future inquiries. I will take here a very general instance, which will fall under what Bacon calls *general topics*. The knowledge of the general principle that every induction implies the establishment of a causal connection by means of the inductive methods at once suggests to our mind a number of false and superstitious notions, which have been held at various times, and the refutation of them. The same principle also serves us as a guide, when a new phenomenon is presented to us: for it directs us to ascertain the cause of the phenomenon, and points to the methods by which it may be ascertained. A man who was ignorant of the principle would have no clue to the interpretation of the phenomenon: and therefore, as Bacon most truly remarks (see I. 7.) a man who has 'the faculty of wise interrogating,' i.e. of directing his investigations judiciously, is already half way to the attainment of the truth. See, e.g. p. 222, n. 32.

⁷⁰ Taken, understood.

⁷⁰ To dispute probably, 'probably' is used as opposed to 'demonstratively': just as logicians now speak of probable reasoning. Sir Alexander Grant says of Aristotle's topics—"The topics," as their name implies, "are the books treating of places," and "places" are seats of arguments, or matters in which argument may be found. Aristotle in a long course of observation and analysis had apparently noted down the heads of reasonings most likely to be available for either attack or defence in dialectical controversy, and he here sets these forth in seven books. His object is to educate the reader to be a skilful dialectician in Athenian arenas. He names the four chief instruments for this purpose: first, to make a large collection of propositions, i.e. authoritative sayings, whether of great men, or of the many; second, to study the different senses in which terms are used; third, to detect differences; fourth, to note resemblances." The student will observe that in Bacon's opinion *topics* have a wider use. They not only enable us to gain victories in disputations, but they also 'direct our inquiry.'

⁷¹ To minister unto, to assist.

⁷² To apprompt our invention, to give us facility in recalling and applying knowledge which we already possess.

⁷³ In a general notion, i.e. he has a general idea of it. For instance, in seek-

therefore the larger⁷⁴ your anticipation is, the more direct and compendious is your search. But the same places which will help us what to produce of that which we know already, will also help us, if a man of experience⁷⁵ were before us, what questions to ask ; or, if we have books and authors to instruct us, what points to search and revolve⁷⁶ ; so as⁷⁷ I cannot report that this part of invention, which is that which the schools call topics,⁷⁸ is deficient.

10. Nevertheless, topics are of two sorts, general and special. The general we have spoken to⁷⁹ ; but the particular hath been touched⁸⁰ by some, but rejected generally as inartificial⁸¹ and variable. But leaving the humour which hath reigned too much in the schools (which⁸² is, to be vainly subtle in a few things which are within their command, and to reject the rest), I do receive particular topics, that is, places or directions of invention and inquiry in every particular knowledge, as things of great use, being mixtures of logic⁸³ with the

ing for the cause of a phenomenon, we must know beforehand what a cause is, viz., that it is something, the disappearance of which involves the disappearance of the phenomenon.

⁷⁴ *The larger*, He says in the *De Aug.* "The wider and truer." By *anticipation* he means the general notion that we form beforehand of what we are in search of. If we think that a cause is simply a phenomenon which is always present whenever the effect is present, we may mistake a mere antecedent for the cause. We shall avoid this mistake if we form 'a larger anticipation' of a cause, and conceive of it as a phenomenon which cannot be eliminated without prejudice to the effect.

⁷⁵ *A man of experience*, a man well acquainted with the subject which we are investigating. What I have said already as to the guidance which previous knowledge gives applies equally in these cases. The principle is the same, whether we seek for information by original research, or whether we seek it from men and books.

⁷⁶ *Revolve*, p. 39, n. 46.

⁷⁷ *So as, &c.* As Ellis remarks, the connection between this sentence and the preceding one is not clear. He says, quite clearly, in the *De Aug.* : "It is needless for me to spend any time on this subject of general topics, since it has been sufficiently treated of by logicians."

⁷⁸ *Topics*, equivalent to 'marks, or places,' p. 244, n. 68. See p. 25, n. 37.

⁷⁹ *Spoken to*, p. 38, n. 33.

⁸⁰ *Touched*, p. 135, n. 22.

⁸¹ *Inartificial*, see p. 192, n. 41.

⁸² See pp. 45-8, §.6, and the notes to that passage.

⁸³ *Being mixtures of logic, &c.* Particular topics are directions to men engaged in experimental inquiries. They belong to logic, in so far as they define the proper method of experimenting. Yet they do not altogether belong to

matter of sciences. For in these it holdeth, *the⁸⁴ art of discovery grows with discoveries*; for as in going of a way, we do not only gain that part of the way which is passed, but we gain the better sight of that part of the way which remaineth: so every degree of proceeding in a science giveth a light to that which followeth; which light if we strengthen by drawing it forth into questions⁸⁵ or places of inquiry, we do greatly advance our pursuit.

XIV. Pp. 248—258. Bacon now proceeds to consider the arts of proof. It is unnecessary to say more about proof by induction, for the foregoing description of inductive *method* is, at the same time, a description of the

logic: they are 'mixtures of logic with matter of sciences,' i.e. they are applications of logical method to the various sciences. Logic proper only defines the *general* conditions of experiment: e.g. it tells us that we must know exactly the nature of each new phenomenon that we introduce, and that we must be sure that there is no circumstance present which will counteract its effect. But it does not tell us what will be the special difficulty of fulfilling these conditions in particular experiments. Special topics, on the other hand, are intended to guide inquirers in individual cases: and therefore they are a mixture of logic and science. The inquirers in each science have their own special topics or directions. In the *De Aug.* Bacon gives an example of special topics, or directions for inquiry concerning heavy and light. In making experiments, a man, he says, should try and discover what bodies are heavy and light, what bodies are heaviest in proportion to their bulk, and what light bodies rise quickest, whether the weight of a falling body increases its velocity, whether there are other bodies, besides the earth, of sufficient bulk to be self-supporting, whether the velocity of a falling body increases with the distance traversed, &c., &c.

⁸⁴ The further we advance in a science, the more clearly do we see our way to future discoveries. If we are absolutely ignorant beforehand of the phenomena which we are going to investigate, we have no clue as to the direction which our inquiries should take. As we advance in the subject, it gradually becomes clearer to us what the material points are, where they are to be looked for, and how found. We gradually improve our method of procedure too by discovering fresh methods of proof, by combining the results of isolated observations and experiments, and so forth. What Bacon says here of the methods of particular sciences is true of the general theory of scientific method. As methods of discovery are perfected, logic is improved also: for it is merely an analysis of the processes which the mind goes through in discovery. See p. 235, n. II.

⁸⁵ *Questions*, the directions to inquirers take the form of questions. Thus, in the instance quoted in n. 83, the points to be elucidated are, what bodies are heavy? &c.

conditions, of inductive *proof*. It remains only to consider the doctrine of the syllogism. This, as we might have expected, has been sufficiently elaborated by previous writers. Men were, &c., all eager to establish a few certain propositions, on which all their inferences might rest. The premisses of syllogisms are not to be questioned; the conclusions are deduced from them by means of a middle term, the deduction being demonstrated either *ostensively*, or *per impossibile*. Syllogisms may be combined in trains of reasoning. Deductive logic contains two parts, the first considering terms, propositions, and the rules of the syllogism; the second being the doctrine of fallacies. Aristotle has discussed the various fallacies, and Plato has given examples of them. A knowledge of the various fallacies may be employed either to refute false arguments, or to invent sophistical ones. The doctrine of fallacies may be so extended as to admit of a very wide application to scientific inquiry generally, by warning investigators against the errors which creep into science from an ambiguous use of language. The doctrine of the categories may also be included in the logic of fallacies, for its chief use is to warn the scientific inquirer against inaccurate classification and definitions. Bacon mentions three important classes of fallacies, which have not received sufficient consideration, and of which he gives instances, viz.:

- i. Fallacies to which the human mind, generally, is, from its constitution, liable.
- ii. Fallacies to which individuals are liable, owing to their peculiar mental habits and training.
- iii. Fallacies which spring from a misunderstanding of the nature of language.

There remains only one, and that a very important, part of logic, viz., a consideration of the different kinds or degrees of proof that different subjects admit of. Science will not advance, if we require demonstrative proof when it cannot be had, or if we are content with probability, when certainty is attainable.

XIV. 1. Now we pass unto the arts of judgement, which handle the natures of proofs and demonstrations; which⁸⁶ as to induction hath a coincidence with invention. For⁸⁷ in all inductions, whether in good or vicious⁸⁸ form, the same action of the mind which inventeth, judgeth; all one as in the sense.⁸⁹ But otherwise it is in

⁸⁶ Which, viz., judgement.

⁸⁷ Bacon means to say that, in induction, observation itself forces the inference upon us. The conclusion is not demonstrated by means of a middle term. In his own method, for instance, the mere process of elimination brings 'the form' to light. The student of Logic will be familiar with the question whether inductive inference is from particulars to particulars, as Mill maintains, or not. In my opinion it is not.

⁸⁸ Vicious form, that, namely, which is criticised on p. 235, § 3.

⁸⁹ All one as in the sense, i.e. just as it happens in the case of the senses, which not only convey impressions, but also guarantee their truth.

proof by syllogism ; for the proof being not immediate, but by mean,⁹⁰ the invention of the mean is one thing, and the judgement of the consequence⁹¹ is another ; the one exciting⁹² only, the other examining. Therefore, for the real and exact form of judgement,⁹³ we refer ourselves to that which we have spoken of interpretation of nature.

2. For the other judgement by syllogism, as it is a thing most agreeable to the mind of man, so it hath been vehemently and excellently laboured. For the nature of man doth extremely covet to have somewhat⁹⁴ in his understanding fixed and unmoveable, and as a rest and support of the mind. And therefore as Aristotle endeavoureth to prove, that in all motion⁹⁵ there is some point quiescent ; and as he elegantly expoundeth the ancient fable of Atlas (that stood fixed, and bare up the heaven from falling) to be meant of the poles or axle-tree of heaven, whereupon the conversion is accomplished : so assuredly men have a desire to have an Atlas or axle-tree within to keep them from fluctuation, which is like to a perpetual peril of falling. Therefore men did hasten to set down some principles⁹⁶ about which⁹⁷ the variety of their disputationes might turn.

⁹⁰ *By mean*, by a middle term.

⁹¹ *The judgement of the consequence*, the inference that the conclusion follows from the premisses.

⁹² *Exciting*, i.e. stirring up the mind to discover a middle term which will prove the conclusion. For, as he says below, p. 250, l. 3, a man must exercise his ingenuity in discovering the middle term : 'it is elected at the liberty of every man's invention.' We may prove, for instance, that a despotic government is bad, either because it interferes with the liberty of the subjects unduly, or because it taxes them oppressively, or because it checks the growth of industry, &c.

⁹³ *Of judgement*, viz., by induction. See p. 240, § 5.

⁹⁴ *Somewhat*, some propositions. Man is supported in all his doubts and uncertainties by a few indisputable certainties which will resolve his doubts, just as the heaven in its revolution (see p. 195, n. 69,) is kept from falling by the pole. *Atlas*, according to the Greek mythology, was a giant, who supported the heaven on his shoulders.

⁹⁵ *In all motion*, i.e. in all bodies in motion.

⁹⁶ *Principles*, propositions which might stand as the major premisses of syllogisms.

⁹⁷ *About which—might turn*, i.e. which might support their arguments. The metaphor, of course, is taken from the 'conversion' or revolution of the heaven on the pole.

3. So then this art of judgement is but the reduction⁹⁸ of propositions to principles in a middle term. The principles to be agreed by all and exempted from argument; the middle term⁹⁹ to be elected at the liberty of every man's invention; the reduction to be of two kinds, direct and inverted; the¹ one when the proposition is reduced to the principle, which they term a probation ostensive; the other, when² the contradictory of the proposition is reduced to the contradictory of the principle, which is that which they call *per incommodum*, or pressing an absurdity; the³ number of middle terms to be as the proposition standeth degrees more or less removed from the principle.

4. But this art hath two several methods of doctrine, the one by way of direction, the other by way of caution; the former frameth and setteth down a true form of consequence, by the variations and deflections from which errors and inconsequences⁴ may be exactly judged. Toward the composition and structure of which form, it is incident to handle the parts thereof, which are propositions, and the parts of propositions, which are simple words. And this is that part of logic which is comprehended in the Analytics.⁵

5. The second method of doctrine was introduced for expedite use and assurance sake⁶; discovering the more subtle forms of

⁹⁸ *The reduction, &c.*, see p. 237, n. 25.

⁹⁹ *The middle term, &c.*, see above, n. 92.

¹ *By ostensive reduction*, the same conclusion, or an equivalent one, is proved in the first figure of the syllogism.

² *By reductio per impossible*, we show that if the contradictory of the conclusion be true, the premisses must be false. But the truth of the premisses is not to be questioned.

³ It may require a long train of reasoning to prove the conclusion, as, for instance, in a *Sorites*. After to be supply 'greater or less.'

⁴ *Consequence*, inference, viz., the syllogism. The word is used in its literal sense, to denote the *following* of the conclusion from the premisses. Similarly, in l. 14, below, *inconsequences* means erroneous inferences. We talk of the fallacy of 'non sequitur,' i.e. literally, it does not follow. Bacon in the *De Aug.* says that it is not really necessary to treat of the fallacies separately, since they may be deduced from the rules of correct reasoning: but that it is advisable to enumerate them separately, 'by way of caution' to men. Of course, from the rules of the syllogism we can only deduce the *formal* fallacies.

⁵ *Analytics*, the name of two of Aristotle's logical treatises. It signifies the analysis or resolution of arguments into their component elements.

⁶ *For assurance sake*, i.e. to give men confidence, by enabling them to distinguish between true and false reasoning.

sophisms⁷ and illaqueations⁸ with their redargutions,⁹ which is that which is termed *clenches*.¹⁰ For although in the more gross sorts of fallacies it happeneth (as Seneca maketh the comparison well) as in juggling feats, which, though we know not how they are done, yet we know well it is not as it seemeth to be; yet the more subtle sort of them doth not only put a man besides his answer,¹¹ but doth many times abuse¹² his judgement.

6. This¹³ part concerning *clenches* is excellently handled by Aristotle in precept, but more excellently by Plato¹⁴ in example; not only in the persons of the Sophists, but even in Socrates himself, who, professing to affirm nothing, but to infirm¹⁵ that which was affirmed by another, hath exactly expressed all the forms of objection, fallace,¹⁶ and redargution. And although we have said that the use of this doctrine is for redargution, yet it is manifest the degenerate and corrupt use is for caption and contradiction,¹⁷ which passeth for a great faculty, and no doubt is of very great advantage: though the difference be good which was made between orators and sophisters,¹⁸

⁷ *Sophisms*, the Greek word for *fallacies*.

⁸ *Illaqueations*, snares. Cp. 'snare the understanding,' p. 253, l. 14.

⁹ *Redargutions*, refutations.

¹⁰ *Blenches*, the Greek word for *refutations*. One of Aristotle's logical treatises is called 'sophistikai elenchai,' i.e. refutations of fallacies. It is to this treatise which Bacon alludes below, I. 8. Bacon gives the English plural sign to the Greek word.

¹¹ *Put a man besides his answer*, i.e. they are so subtle that men are unable to refute them. Such, for instance, was the celebrated fallacy of Achilles and the tortoise.

¹² *Abuse*, deceive.

¹³ In the *De Aug.* Bacon divides the doctrine of fallacies into three parts, viz., 1, cautions against sophisms, to which the remarks in § 6 apply: 2, cautions against ambiguities of words, which are dealt with in § 7: 3, cautions against false appearances, which are dealt with in §§ 9—12.

¹⁴ See p. 123, n. 43.

¹⁵ *To infirm*, to invalidate. See p. 61, n. 81.

¹⁶ *Fallace*, fallacy. Ellis says that it is not the same word as *fallacy*, but is formed from the Latin adjective *fallax*, which Bacon sometimes uses instead of fallacy.

¹⁷ *For caption and contradiction*, i.e. for inventing false and sophistical arguments.

¹⁸ *Sophisters*, sophists. See p. 123, n. 43. The victories of the orator are won by honest and straightforward reasoning, those of the sophist by subtlety and ingenuity. In the same way the greyhound will beat the hare, in running straight: but the hare is quicker at turning and twisting about.

that the one is as the greyhound, which hath his advantage in the race, and the other as the hare, which hath her advantage in the turn, so as it is the advantage of the weaker creature.

7. But yet further, this doctrine of *elenches* hath a more ample latitude¹⁹ and extent than is perceived; namely, unto divers parts of knowledge; whereof some are laboured and other omitted. For first, I conceive (though it may seem at first somewhat strange) that that part which is variably²⁰ referred, sometimes to logic, sometimes to metaphysic,²¹ touching the common adjuncts²² of essences,²³ is but an *elenche*. For the great sophism of all sophisms being equivocation or ambiguity of words and phrase, specially of such words as are most general and intervene in every inquiry, it seemeth to me that the true and fruitful use (leaving vain subtilties and speculations) of the inquiry of majority, minority, priority, posteriority, identity, diversity, possibility, act,²⁴ totality, parts, existence, privation,²⁵ and the like,

¹⁹ *Latitude*, see p. 20, n. 98.

²⁰ *Variably*, explained by what follows, viz., sometimes to logic, sometimes to metaphysic. In order to understand this passage, the student must refer to p. 153, and my notes there. The qualities mentioned below, viz., majority, minority, &c., may be considered either as they are 'in nature,' or logically, i.e. as they are 'in notion.' The consideration of them as they are in nature has been already assigned to the *first philosophy*, and need not therefore detain us now. But this is the proper place for considering them logically, or as they are 'in notion.' The logical treatment of them 'is but an *elenche*', i.e. belongs to the doctrine of fallacies, which we are now considering; for the business of logic with regard to them is to warn men against the errors into which they will fall if they neglect to define the meaning of the terms exactly. This process of definition, therefore, has an application 'unto divers parts of knowledge,' for all scientific inquirers, if they go on using these terms without first defining their meaning, will fail to arrive at the truth, and will find themselves involved in endless discussions about words.

²¹ *Metaphysic*, i.e. not to metaphysic, as defined by Bacon, but to the Aristotelian metaphysic, or *first philosophy*.

²² *Adjuncts*, qualities. On p. 153, l. 4, he calls them 'extern characters of things.' See p. 164, n. 11.

²³ *Essences*, substances, things which exist. The word was formed by the Schoolmen to serve as the exact equivalent of the Greek word *ousia*, which itself is formed from the participle of the Greek verb, 'to be.'

²⁴ *Possibility*, *act*, referring to the Aristotelian distinction between potentiality and actuality: e.g. a seed is a tree *potentially*, a tree exists actually, or 'in act.' See p. 60, n. 72.

²⁵ *Privation*, the absence of a quality. Cp. our expression, 'a privative term.'

are²⁶ but wise cautions against ambiguities of speech. So again the distribution of things into certain tribes, which we call categories or predicaments,²⁷ are but cautions against the confusion of definitions and divisions.

8. Secondly, there is a seducement that worketh by the strength of the impression, and not by the subtily of the illaqueation²⁸; not so much perplexing the reason, as overruling it by power of the imagination. But this part I think more proper to handle when I shall speak of rhetoric.

9. But²⁹ lastly, there is yet a much more important and profound kind of fallacies in the mind of man, which I find not observed or inquired at all, and think good to place here as that which³⁰ of all others appertaineth most to rectify judgement: the force whereof is such, as it doth not dazzle or snare the understanding in some particulars, but³¹ doth more generally and inwardly infect and corrupt the state thereof. For³² the mind of man is far from the nature of a

²⁶ *Are*, obs. the plural verb.

²⁷ *Predicaments*, the exact Latin equivalent of the Greek word *categories*. Bacon is referring to the ten categories of Aristotle, which, according to Mill, were intended as an enumeration of all things capable of being named: an enumeration by the most extensive classes into which things could be distributed. They were substance, quantity, quality, relation, action, passion, time, place, position and condition. One or other of these was supposed to be predicate of everything that exists. The treatment of the categories is not included generally in the logic of Fallacies. Bacon places it there, because the categories are intended, he says, to impress upon men the necessity of sound principles of classification, and the errors consequent on the neglect of them.

²⁸ *The illaqueation*, p. 251, n. 8. With this passage cp. xviii. 2.

²⁹ In the *Nov. Org.* Bacon calls these 'false appearances' *idols*, the Greek equivalent of 'false appearances.' He then enumerates four classes of them, viz., *Idols of the tribe*, which correspond to those discussed in § 9: *Idols of the cave*, corresponding to those described in § 10: *Idols of the market place*, corresponding to those mentioned in § 11: and *Idols of the School*, those namely which are imposed on us by false theories, and false systems of reasoning. These last are not mentioned here. They are less important than the other three, because we can free ourselves from them.

³⁰ *As that which*, the construction is somewhat irregular. It is not, of course, the kind of fallacies which will rectify the judgement, but the observation of them.

³¹ Other fallacies mislead us occasionally, but these spring from defects which are inherent in the very constitution of the mind. We require therefore to be perpetually on our guard against them.

³² For the metaphor, cp. p. 48, l. 20, sq.

clear and equal glass, wherein the beams of things should reflect according to their true incidence; nay, it is rather like an enchanted glass, full of superstition and imposture, if it be not delivered and reduced. For this purpose, let us consider the false appearances that are imposed upon us by the general nature of the mind, beholding them in an example or two; as first, in that instance which³³ is the root of all superstition, namely, that to the nature of the mind of all men it is consonant for the affirmative or active to affect more than the negative or privative. So that a few times hitting or presence, countervails oft-times failing or absence; as was well answered by Diagoras³⁴ to him that showed him in Neptune's temple the great number of pictures of such as had escaped shipwreck, and had paid their vows to Neptune, saying, *Advise³⁵ now, you that think it folly to invoke Neptune in tempest. Yea but (saith Diagoras) where are they painted that are drowned?* Let³⁶ us behold it in another instance, namely, that the spirit of man, being of an equal and uniform substance, doth usually suppose and feign in nature a greater equality and uniformity than is in truth. Hence it cometh, that the mathematicians cannot satisfy themselves except they reduce the motions of the celestial bodies to perfect circles, rejecting spiral lines, and labouring to be discharged of³⁷ eccentrics. Hence it cometh that whereas there are many things in nature, as it were *singular and unique*; yet the cogitations of man do feign unto them relatives, parallels, and conjugates,³⁸ whereas no such thing is; as they have

³³ The fallacy of non-observation of instances. See p. 222, n. 31 and 32, and p. 235, § 3, with the notes on the passage. See Mill's *Logic*, Bk. v., ch. 4, § 3. A negative or privative instance, i.e. one which contradicts a theory, or in which the supposed cause does not produce the effect, shows either that the theory is false, or that there is a counteracting cause at work. *Privative* is opposed to active, to denote the absence of the effect in cases where, if our theory were true, it ought to be present. Cp. p. 252, n. 25. After *superstition*, he adds in the *De Aug.* 'and silly credulity.'

³⁴ *Diagoras*, a Greek, surnamed the atheist. It was the custom of the Romans, when shipwrecked, to vow an offering to Neptune, the God of the Sea, if they were preserved.

³⁵ *Advise*, p. 96, n. 34.

³⁶ Fowler remarks that this excessive love of system, or tendency to feign parallels or similitudes where none exist, is, in a logical classification of the fallacies, best referred to false analogy. See Mill's *Logic*, Bk. v., ch. 5, § 6.

³⁷ To be discharged of, to get rid of. *Eccentrics*, p. 195, n. 70.

³⁸ *Conjugates*, equivalent to *relatives*. The word literally means connected with.

feigned an element of fire,³⁹ to keep square with earth, water, and air, and the like. Nay, it is not credible, till it be opened,⁴⁰ what a number of fictions and fantasies the similitude⁴¹ of human actions and arts, together with⁴² the making of man *the common measure*, have brought into natural philosophy; not much better than the heresy of the Anthropomorphites,⁴³ bred in the cells of gross⁴⁴ and solitary monks, and the opinion of Epicurus,⁴⁵ answerable to the same in heathenism, who supposed the gods to be of human shape. And therefore Velleius⁴⁶ the Epicurean needed not to have asked, why God should have adorned the heavens with stars, as if he had been an *edile*,⁴⁷ one that should have set forth some magnificent shows or plays. For if that great work-master had been of an human disposition, he would have cast the stars into some pleasant and beautiful works and orders, like the frets⁴⁸ in the roofs of houses; whereas one can scarce find a posture⁴⁹ in square, or triangle, or

³⁹ The element of fire was supposed to lie above that of air, and to be too remote to be perceived by the senses. J. S.

⁴⁰ *Opened*, pointed out.

⁴¹ *The similitude, &c.*, i.e. the fallacy of representing nature as working in the same way that man works. This fallacy is exemplified in the teleological method. See p. 177, n. 60.

⁴² Bacon refers to the doctrine of Protagoras, which has been variously interpreted, that man is the measure of all things. Bacon means to say that men will not acknowledge that there are some laws of nature which are ultimate, and do not admit of explanation, but that they try to give an account of these laws, and the account which they give is based on the analogy of human actions: as, for instance, when they personify inanimate objects, and talk of nature abhorring a vacuum.

⁴³ *The Anthropomorphites*, a sect in the early Christian Church, who believed that God was of human shape. See Gibbon, ch. 47.

⁴⁴ *Gross*, stupid.

⁴⁵ *Epicurus*, p. 214, n. 82.

⁴⁶ *Velleius*, p. 61, n. 80.

⁴⁷ The *edile* was a Roman magistrate, whose business it was to superintend all public games and exhibitions.

⁴⁸ *Frets*, a peculiar style of ornamentation used for roofs.

⁴⁹ *A posture*, a figure, i.e. stars arranged in the shape of a square, &c. To the 'idols of the tribe' here mentioned, he adds in the *Nov. Org.* the errors into which we are led by being unduly influenced by strong and sudden impressions, by being biased in our judgements by the will and affections, by being unable to remedy the defects of the senses (see p. 230), and by the tendency of the mind to frame abstract and unsupported theories.

straight line, amongst such an infinite number ; so differing an harmony there is between the spirit of man and the spirit of nature

10. Let us consider again the false appearances imposed upon us by every man's own individual nature and custom, in that feigned⁵⁰ supposition that Plato maketh of the cave : for certainly if a child were continued in a grot or cave under the earth until maturity of age, and came suddenly abroad, he would have strange and absurd imaginations. So in like manner, although our persons live in the view of heaven, yet our spirits⁵¹ are included in the caves of our own complexions⁵² and customs, which minister unto us infinite errors and vain opinions, if they be not recalled to examination. But⁵³ hereof we have given many examples in one of the errors, or peccant humours, which we ran briefly over in our first book.

11. And lastly, let us consider the false appearances that are imposed upon us by words, which are framed and applied according to the conceit⁵⁴ and capacities of the vulgar sort : and although we think we govern our words, and prescribe it well to speak like the vulgar, and to think like the wise⁵⁵ ; yet certain it is that words, as a

⁵⁰ In that feigned, &c. i.e. Plato's example of the cave will serve as a good illustration of this kind of 'false appearances.' Ordinary men, Plato says in the Republic, never know things as they are in themselves, but are like men imprisoned in a cave, sitting with their backs to a fire and their faces to a wall, and mistaking the shadows thrown by real things upon the wall for the realities themselves. So, says Bacon, each man is imprisoned in his own particular cave, and mistakes his own impressions and fancies for realities.

⁵¹ Spirits, minds. The word *included* is used in its literal sense of *shut up* or *imprisoned*.

⁵² Complexions, mental and bodily constitution, cp. p. 17, n. 75.

⁵³ See p. 59, § 6. In the *Nov. Org.* Bacon says that the 'idols of the cave' come from the fact that some men can note resemblances, and not differences, and *vice versa* ; that men have too great a regard either for antiquity or novelty (p. 55, § 1) ; and that some men occupy themselves with minute research only, to the neglect of general speculations, and *vice versa*.

⁵⁴ Conceit, intelligence. In the *Nov. Org.* Bacon notes a twofold source of error in this respect. Sometimes we think that things exist, simply because there are names for them ; sometimes the words which we use do not adequately represent the things which they are intended to denote. (See p. 237, n. 26.) With this passage the student should compare Mill's *Logic*, Bk. iv., chs. 3-6.

⁵⁵ Cp. the saying of Hobbes, "Words are the counters of wise men, but the money of fools."

Tartar's⁵⁶ bow, do⁵⁷ shoot back upon the understanding of the wisest, and mightily entangle and pervert the judgement. So as it is almost necessary, in all controversies and disputations to imitate the wisdom of the mathematicians, in setting down in the very beginning the definitions of our words and terms, that others may know how we accept and understand them, and whether they concur with us or no. For⁵⁸ it cometh to pass, for want of this, that we are sure to end there where we ought to have begun, which is, in questions and differences about words. To conclude therefore, it⁵⁹ must be confessed that it is not possible to divorce ourselves from these fallacies and false appearances, because they are inseparable from our nature and condition of life; so yet nevertheless the caution of them (for all *elences*,⁶⁰ as was said, are but *cautionis*) doth extremely import⁶¹ the true conduct of human judgement. The particular *elences* or cautions against these three false appearances, I find altogether deficient.

*Elenches, or
of the native
and adventi-
tious idols of
the mind.*

12. There remaineth one part of judgement of great excellency, which to mine understanding is so slightly touched,⁶² as I may report

⁵⁶ The Tartars, like the Parthians, are said to have been such expert horsemen that, whilst flying from an enemy, they could readily discharge their arrows back at him.

⁵⁷ The understanding coins words to be employed in its own service, and is, in turn, enslaved by them.

⁵⁸ In the *De Aug.* Bacon says that even definition will not remedy the evil. It is of no use to define a term accurately, if the term itself does not adequately represent the thing which it professes to denote. The remedy must go deeper than this; we must subject our ideas themselves to revision, and base them on accurate generalisations from experience. See p. 237, n. 26. It is easy enough to define in mathematics, because the conceptions are so simple; but many observations and judgements are necessary, before we can settle the meaning of such terms as power, force, energy, &c., as employed in physical science.

⁵⁹ Bacon does not mean to say, by this, that the attainment of truth is impossible, but that men will constantly commit these fallacies, and that, if they are not warned against them, they will not see when they have committed them, and, consequently, will not correct their errors. Moreover, all men are not beset by the same 'idols,' and therefore men will be able to correct one another's errors.

⁶⁰ See p. 250, l. 12, and p. 253, n. 27. For the meaning of *elences*, see p. 251, n. 10.

⁶¹ Import, concern:

⁶² Touched, p. 135, n. 22.

that also deficient; which is the application of the differing kinds of proofs to the differing kinds of subjects. For there being but four kinds of demonstrations, that is, by⁶³ the immediate consent of the mind or sense, by induction, by syllogism, and by congruity, which is that which Aristotle calleth demonstration in orb⁶⁴ or circle, and not from things better known, every⁶⁵ of these hath certain subjects in the matter of sciences, in which respectively they have chiefest use; and certain others, from which respectively they ought to be excluded; and the rigour and curiosity in requiring the more severe proofs in some things, and chiefly the facility in contenting ourselves with the more remiss proofs in others, hath been amongst the greatest causes of detriment and hindrance to knowledge.

Of the analogy of demonstration.

The distributions and assignations of demonstrations, according to the analogy⁶⁶ of sciences, I note as deficient.

XV. Pp. 259—262. Knowledge may be retained either by committing it to writing, or by trusting to the memory. The consideration of the different methods of writing belongs to grammar. The art of committing knowledge to writing, in such a way that it shall be useful, consists in arranging the subjects skilfully in our note-books. Of course, it takes time to make notes, and a man

⁶³ i.e. intuitive knowledge; e.g. we have an intuitive knowledge of our own existence. For 'the immediate consent of the sense,' see p. 248, n. 8g. The kinds of proof of which different subjects admit is an important subject, which finds a place in every good treatise on logic. The existence of a thing must, in the last resort, rest on the fact of its having been observed. The primary laws of a science must be established inductively, its secondary laws may be inferred deductively from the primary ones (see p. 184, n. 97). In the moral sciences, where exact data are not attainable, we must be content with approximate conclusions.

⁶⁴ Demonstration in orb, i.e. when the conclusion does not follow from propositions of which the truth is apprehended intuitively, but when we first prove a conclusion deductively, and then use that conclusion with the converse of one of the premisses, by which it was proved, to prove the remaining premiss. For example, B is A : C is B : C is A : C is A : A is B : C is B. This can only be done when A and B are convertible. The highest certainty attaches to those conclusions only which follow from self-evident propositions.

⁶⁵ Every, p. 20, n. 96.

⁶⁶ Analogy, almost equivalent to nature. What Bacon means is, that different methods are appropriate to different sciences.

is in danger of weakening his memory by trusting to them too much; still, unless a man does take notes, his knowledge will be rather showy than profound. Bacon regrets that there is no sound art of making notes. There is also required an art of strengthening the memory. Bacon attaches no value to mere feats of memory, which cannot be turned to any serious use. The true art of memory should be based on *prenotion* and *emblem*; the first giving us a clue to that which we wish to remember, the second facilitating recollection, by associating ideas with sensible images.

The student will not fail to notice here the practical bent of Bacon's mind. See p. 48, n. 96.

XV. I. The custody or retaining of knowledge is either in writing or memory; whereof writing hath two parts, the nature of the character, and the order of the entry.⁶⁷ For the art of characters,⁶⁸ or other visible notes⁶⁹ of words or things, it hath nearest conjugation⁷⁰ with grammar; and therefore I⁷¹ refer it to the due place. For the disposition and collocation of that knowledge which we preserve in writing, it consisteth in a good digest⁷² of common-places; wherein I am not ignorant of the prejudice imputed to the use of common-place books, as causing a retardation of reading, and some sloth or relaxation of memory.⁷³ But because it is but a counterfeit thing in knowledges to be forward and pregnant,⁷⁴ except a man be deep and full, I hold the entry of common-places to be a matter of great use and essence⁷⁵ in studying, as that which assureth copie of invention,⁷⁶

⁶⁷ *The order of the entry*, the manner in which our notes are arranged. We still talk of *an entry* in a book.

⁶⁸ *Characters*, p. 226, n. 57.

⁶⁹ *Notes*, used in its literal sense of *marks* or *signs*. The distinction between notes of *words* and notes of *things* is explained on p. 263, § 2.

⁷⁰ *Conjugation*, connection. Cp. p. 254, n. 38.

⁷¹ Pp. 263-4, §§ 2—3.

⁷² *A good digest*, a skilful arrangement. Bacon means to say that all entries in our note-books should be arranged under certain headings: and that for the headings we should take *common-places*, i.e. subjects 'whereof we have most continual use,' p 243, l. 19. If we do this, we shall know where to find a thing when we want it.

⁷³ We do not get on so fast with our reading, as we otherwise should do, and we trust too much to our notes, and too little to our memory.

⁷⁴ *Pregnant*, ready; producing knowledge quickly. In the 50th *Essay* Bacon says, "writing maketh an exact man: and therefore, if a man write little, he had need have a great memory."

⁷⁵ *Essence*, importance.

⁷⁶ *Assureth copie of invention*, i.e. makes it certain that a man will be able to produce his information when it is wanted. See p. 114, n. 70. For *copie*, see

and contracteth judgement to a strength.⁷⁷ But this is true, that of the methods of common-places that I have seen, there is none of any sufficient worth: all of them carrying merely the face of a school, and not of a world; and referring to vulgar matters and pedantical divisions, without all life⁷⁸ or respect to action.

2. For the other principal part of the custody of knowledge, which is memory, I find that faculty in my judgement weakly inquired of. An art there is extant of it; but it seemeth to me that there are better precepts than that art, and better practices of that art than those received. It is certain the art (as it is) may be raised to points of ostentation prodigious: but in use (as it is now managed) it is barren, not burdensome, nor dangerous to natural memory, as is imagined, but barren, that is not dexterous to be applied to the serious use of business and occasions. And therefore I make no more estimation of repeating a great number of names or words upon once hearing, or the pouring forth of a number of verses or rhymes *ex tempore*, or the making of a satirical simile of everything, or the turning of everything to a jest, or the falsifying or contradicting of everything by cavil,⁷⁹ or the like (whereof in the faculties of the mind there is great copie,⁸⁰ and such as by device and practice may be exalted to an extreme degree of wonder), than I do of the tricks of tumblers, funambuloes, baladines⁸¹; the one being the same in the mind that the other is in the body, matters of strangeness without worthiness.

3. This art of memory is but built upon two intentions; the one

p. 40, n. 52. All new discoveries are rendered possible by former discoveries. It is essential, therefore, that we should remember the discoveries which we make. And this we shall not do unless we commit them to writing as we make them. In the *De Aug.* he says that the memory cannot be trusted in matters of great length, and requiring great accuracy, of which kind are the matters that the scientific inquirer has to deal with. It is as absurd to suppose that a man, who trusts to his memory alone, can succeed in discovering the laws of nature, as it would be to suppose that a man could go through all the calculations, required for an almanac, in his head.

⁷⁷ Contracteth judgement, &c., i. e. supplies us with the materials for a sound judgement.

⁷⁸ Life, cp. p. 114, l. 17, sq.

⁷⁹ Cavil, captious objection. Cp. *cavillation*, p. 239, l. 14.

⁸⁰ Copie, p. 40, n. 52.

⁸¹ Funambuloes, baladines, rope-walkers, and clowns.

prenotion,⁸² the other emblem. Prenotion dischargeth⁸³ the indefinite seeking of that we would remember, and directeth us to seek in a narrow compass, that is, somewhat that hath congruity with our place of memory.⁸⁴ Emblem⁸⁵ reduceth conceits intellectual to images

⁸² *Prenotion*, p. 207, n. 99. It is used here to denote the previous knowledge, which we may have, that something which we have forgotten, is to be looked for among a limited number of things. Bacon says, more clearly in the *De Aug.*: "If, when we are trying to recollect a thing, we have no *prenotion* of that which we are trying to recollect, we shall seek for it, certainly, and try to recollect it: but our memory will roam hither and thither, as if in an infinite space. Whereas, if we have a definite *prenotion* of it, the space, in which the memory has to search, is at once limited. The memory is then like a man hunting a deer in an enclosure. (Cp. p. 242, l. 16, sq.) For instance, poetry is more easily remembered than prose, because if we forget a word, we have a *prenotion*, that it must be a word which will fit the verse." Cp. *Nov. Org.*, Bk. 2, Aph. 26.

⁸³ *Dischargeth*, relieves us of. Cp. p. 108, n. 27. And p. 254, n. 37.

⁸⁴ The *place of memory*, is that to which *prenotion* directs us. For instance, in the example given in n. 82, the *place of memory* would be the words possessing the required number of syllables. An art of memory, according to Bacon, should enable us to supply our mind with such places of memory; i.e. we should associate things, as we become acquainted with them, with certain ideas, in such a way that, if ever we forget the things, they may be suggested by the ideas with which they were associated. For instance, a botanist tells me that a certain flower, which I have never before seen, possesses a certain property. I mentally refer the flower to a certain class; in other words, I associate my idea of that flower with my idea of a class of flowers possessing certain properties. I subsequently forget whether this particular flower has or has not the particular property, which I was told that it had. But I have no difficulty in recollecting, for I have a *prenotion* that it belongs to a certain class. I carry back my memory to that class, and find that all flowers in that class do possess that property, and my difficulty is at an end. If I had not associated my idea of the flower with my idea of the class, I should have had no clue to guide me in trying to recollect, whether it possessed the property or not. We are all familiar, by experience, with this *association of ideas*, see p. 231, n. 86.

⁸⁵ *Emblem* is the association of ideas with sensible impressions. The latter, being more easily remembered, suggest the former. For instance, Bacon says, in the *De Aug.*: "It is more easy to retain the impression of a hunter pursuing a hare, or of a chemist arranging his jars, or of a boy reciting verses from memory, or of an actor playing on the stage, than it is to retain the ideas themselves of pursuit, arrangement, memory, and acting." The following are less obvious instances, given in the *Nov. Org.* We remember easily things which have affected us strongly, either pleasurable or painfully: and things which we have read or heard with minds not preoccupied. For instance, we

sensible, which strike the memory more ; out of which axioms^{ss} may be drawn much better pratiquest than that in use ; and besides which axioms, there are divers more touching help of memory, not inferior to them. But I did in the beginning distinguish,^{ss} not to report those things deficient, which are but only ill managed.

XVI. Pp. 263—270. Bacon now proceeds to the art of communicating ideas. He considers first the *means* of communication, which may be either speech or writing. In writing it is not necessary that we should employ words ; we may have a distinct sign for each idea. This method of writing has the advantage of enabling nations, who do not understand one another's language, to communicate with one another : each nation translating the written signs into its own language. The signs employed to express our ideas may have some affinity to the ideas expressed, as in the case of hieroglyphics and gestures, or may be purely arbitrary, as in the case of words, and the kind of signs alluded to above. It seems useless to try to show that words are anything more than conventional. The inquiry into the different means of communicating ideas is analogous to the inquiry into the different *media* that men have used for exchange ; it is equally important, and ought not to have been neglected, as it has been.

The consideration of language belongs to grammar, the study of which was rendered necessary by the curse pronounced at the building of the Tower of Babel, to enable men to understand other languages than their own. Grammar should also consider, though it has neglected to do so, the growth and progress of ideas, as shown in language. To grammar also belongs the consideration of accent, and rhythm, and metre. It is a mistake to suppose that modern writers may not legitimately employ new metres. It is also worth while to consider the different modes of writing in cipher. The merits of a cipher are that it should not excite suspicion, that it should be easily interpreted by those who have the key to it, and that it should defy interpretation by those for whom it is not intended.

Bacon is quite aware that he is exposing himself to the charge of making a list of trivial subjects. But those who accuse him of so doing, must remember

retain a vivid recollection of what we learned as children. We remember things by recollecting the place in which we read them, or the manner in which we read, or heard them. We recollect easily things which we had eagerly expected, or which had specially excited our attention, &c.

^{ss} *Axioms*, viz., the laws of prenotion and emblem. Bacon says in the *De Aug.* that other aids to memory might be found, besides prenition and emblem ; but that the art of memory, as it is at present, which professes to be based upon these two, has not made even so much use of them, as it might have done.

st *Practique*, practical precepts.

^{ss} *Distinguish*, I decided. See p. 116, l. 23, sq.

that a subject is not necessarily unimportant, because it does not happen to have engaged their attention. His remarks have a practical value for those who will consider them.

XVI. I. There remaineth the fourth kind of rational knowledge, which is transitive, concerning the expressing or transferring our knowledge to others; which I will term by the general name of tradition or delivery. Tradition hath three parts; the first concerning the organ⁸⁹ of tradition; the second concerning the method of tradition; and the third concerning the illustration of tradition.

2. For the organ of tradition, it is either speech or writing: for Aristotle saith well, *Words are the images of cogitations,⁹⁰ and letters are the images of words.* But yet it is not of necessity that cogitations be expressed by the medium of words. For whatsoever is capable of sufficient differences,⁹¹ and those perceptible by the sense, is in nature competent to express cogitations.⁹² And therefore we see in the commerce⁹³ of barbarous people, that understand not one another's language, and in the practice of divets that are dumb and deaf, that men's minds are expressed in gestures, though not exactly, yet to serve the turn. And we understand⁹⁴ further, that it is the use of China, and the kingdoms of the High Levant,⁹⁵ to write in characters real,⁹⁶ which express neither letters nor words in gross, but things or notions; insomuch⁹⁷ as countries and provinces, which understand not

⁸⁹ *Organ;* see p. 242, n. 44. *Tradition;* p. 9, n. 37.

⁹⁰ *Cogitations,* ideas. Cp. p. 238, l. 3.

⁹¹ *Sufficient differences,* viz., to express all the different ideas which we have occasion to express.

⁹² *To express cogitations, i.e.* to convey one man's ideas to another.

⁹³ *Commerce,* used, as it is in Latin, in the general sense of *intercourse.* In the *De Aug.* he omits the word *barbarous:* Civilized people, also, who do not understand one another's language, can, to a certain extent, express themselves intelligibly by gestures.

⁹⁴ *We understand,* In the *De Aug.* he says; 'It is just beginning to be generally known.'

⁹⁵ *High Levant,* the far East. See p. 32, n. 95, and p. 94, n. 22.

⁹⁶ *Real,* used in its literal sense of 'denoting things.'

⁹⁷ This assertion is true within certain limits. But the structure of the spoken languages, to which written Chinese can correspond, must be identical. E. For instance a synthetical language expresses the relations between ideas by inflections, an analytical language by prepositions; and, therefore, a written synthetical language could not be interpreted by a people, whose spoken language was analytical. Again, there are some barbarous dialects which have words to express my father, his father, &c., but have no word for the

one another's language, can nevertheless read one another's writings, because the characters are accepted more generally than the languages do extend; and therefore they have a vast multitude of characters, as many (I suppose) as radical words:

3. These notes⁹⁸ of cogitation are of two sorts; the one when the note hath some similitude or congruity with the notion: the other *conventional*, having force only by contract⁹⁹ or acceptation. Of the former sort are hieroglyphics¹ and gestures. For as to hieroglyphics (things of ancient use, and embraced chiefly by the Egyptians, one of the most ancient nations), they are but as continued impresses² and emblems. And as for gestures, they are as transitory hieroglyphics, and are to hieroglyphics as words spoken are to words written, in that they abide not; but they have evermore, as well as the other, an affinity with the things signified. As Periander,³ being consulted with how to preserve a tyranny newly usurped, bid the messenger attend and report what he saw him do; and went into his garden and topped⁴ all the highest flowers: signifying, that it consisted in⁵ the cutting off and keeping low of the nobility and grandees. *Conventional*, are the characters real before mentioned, and words: although some have been willing by curious inquiry, or rather by apt feigning,⁶ to have derived imposition of names from reason and intendment⁷; a

general idea of fatier. Such a language, when written, could not be interpreted by a people, who were accustomed to the use of general names.

⁹⁸ Notes, see p. 259, n. 69.

⁹⁹ Contract, convention.

¹ Hieroglyphics, p. 146, n. 6:

² Impresses, representations. The metaphor is taken from a seal, or stamp. See p. 68, n. 23.

³ Periander, despot of Corinth, B.C. 625. The question, mentioned in the text, was put to him by Thrasybulus of Miletus.

⁴ Topped, cut the tops off.

⁵ It consisted in, &c. i.e. the way to retain power was to cut.

⁶ Apt feigning, ingenious invention. Bacon is thinking of the *Cratylus*, a dialogue in which Plato propounds the theory, and supports it by a number of fanciful etymologies, that words were consciously devised to express by their sound the ideas to which they were appropriated. Plato was quite right in supposing that there is an element of art and design in language. On this subject the student may consult Sayce's *Philology, On the Origin of Language*. It is perhaps hardly necessary to remark that philology has 'by searching into antiquity,' made many important discoveries as to the origin and history of words.

⁷ Intendment, design.

speculation elegant, and, by reason it searcheth into antiquity, reverent; but sparingly mixed with truth, and of small fruit. This portion of knowledge, touching the notes of things, and cogitations in general, I find not inquired, but deficient. And although it may seem of no great use, considering that words and writings by letters do far excel all the other ways; yet because this part concerneth as it were the mint of knowledge (for words are the tokens current and accepted for conceits⁸ as moneys are for values, and that it is fit men be not ignorant that moneys may be of another kind than gold and silver), I thought good to propound it to better inquiry.

4. Concerning speech and words, the consideration of them hath produced the science of grammar. For⁹ man still striveth to reintegrate himself in those benedictions, from which by his fault he hath been deprived; and as he hath striven against the first general curse by the invention of all other arts, so hath he sought to come forth of¹⁰ the second general curse (which was the confusion of tongues) by the art of grammar; whereof the use in a mother tongue is small, in a foreign tongue more; but most in such foreign tongues as have ceased to be vulgar tongues, and are turned only to learned tongues. The duty of it is of two natures: the one popular, which is for the speedy and perfect attaining languages, as well for intercourse of speech as for understanding of authors; the other philosophical, examining the power and nature of words, as they are the footsteps¹¹ and prints of reason: which kind of analogy between

⁸ *Conceits*, ideas.

⁹ See p. 67, n. 10, and p. 68, n. 15.

¹⁰ *To come forth of*, to escape.

¹¹ *Footsteps*, p. 212, n. 71. *Prints*, p. 98, n. 51. In the *De Aug.* Bacon gives instances of the kind of subjects which this philosophy of grammar should embrace. It should consider the merits and defects of different languages with a view of determining a standard of excellence in language. It should consider the ways in which the pursuits and intellectual habits of a people may be inferred from their language. For instance, he says, from the number of compounded words in Greek, and the absence of them in Latin, we might infer that the Greeks excelled in the arts, and the Romans in the conduct of affairs; for without compounding words, it is impossible to express the subtle distinctions of art, but simple words suffice for the conduct of business. It should consider whether men, whose language possesses a great fulness of grammatical forms, are not more subtle in the perception of minute differences of meaning, than those who are content with prepositions and auxiliary verbs.

words and reason is handled *sparsim*, brokenly though not entirely ; and therefore I cannot report it deficient, though I think it very worthy to be reduced into a science by itself.

5. Unto grammar also belongeth, as an appendix, the consideration of the accidents of words ; which are measure,¹² sound, and elevation or accent, and the sweetness¹³ and harshness of them ; whence hath issued some curious observations in rhetoric, but chiefly poesy as we consider it, in respect of the verse and not of the argument.¹⁴ Wherin though men in learned tongues do tie themselves to the ancient measures, yet¹⁵ in modern languages it seemeth to me as free to make new measures of verses as of dances : for a dance is a measured pace, as a verse is a measured speech. In these things the sense is better judge than the art ;

I had rather my dishes should please the guests than the cooks.

And of the servile expressing antiquity in an unlike and an unfit subject, it is well said, *That which is old in point of time is new when it has ceased to fit.*¹⁶

Other instances will suggest themselves to the student, such, for example, as the extension of the meaning of terms, owing to an ever-increasing perception of analogies. This process is illustrated by Mill, *Logic*, Bk. iv., ch. 4 and 5. Cp. p. 90, n. 90.

¹² *Measure*, p. 143, n. 79.

¹³ *The sweetness*, &c., For instance, Bacon says in the *De Aug.*, to different nations different sounds are agreeable ; but we find that in most languages open vowels, and harsh combinations of consonants, are avoided.

¹⁴ *The argument*, used, as it is sometimes in Latin, for *the subject matter*. The subject matter of poetry has been discussed already, p. 144. On p. 144, l. 1, Bacon specially referred the consideration of poetic style to the arts of speech.

¹⁵ In the *De Aug.* Bacon censures the practice of forcing modern languages into ancient metres, which are both repugnant to the structure of the languages, and disagreeable to the ear. Besides the subjects mentioned in the text, he says that Prosody should also include the consideration of the applicability of special metres to special subjects.

¹⁶ Before proceeding to consider ciphers, Bacon, in the *De Aug.*, considers the subject of phonetic spelling. He condemns any change in this direction. In the first place, he says, it would be useless, because the pronunciation is constantly changing. In the second place, we could not distinguish the derivation of words, which come from foreign languages, if they were spelt phonetically. In his opinions on this point Bacon is not in agreement with modern philologists. The student should read Max Müller's very interesting essay on the subject, published in his *Selected Essays*. Bacon's first objection

6. For ciphers, they are commonly in letters, or alphabets, but may be in words. The kinds of ciphers (besides the simple ciphers,¹⁷ with changes,¹⁸ and intermixtures of nulls and non-significants) are many, according to the nature or rule of the infolding,¹⁹ wheel-ciphers,²⁰ key-ciphers, doubles, &c. But the virtues of them, whereby

is not worth much. Pronunciation changes now, because the written character in English gives no clue to the pronunciation. Changes in pronunciation are much less frequent in Marathi. If English were spelt phonetically, English pronunciation would change less frequently, and the spelling could be altered with the changes. The alterations required would be few and far between. Nor is his second objection of more weight: the old spelling could be retained side by side with the phonetic spelling in Dictionaries; and such guidance as it affords in etymology would in this way be retained. The English alphabet wants remodelling; it must be reconstructed so that every sound in the language shall have one, and only one, character to represent it. There is not the slightest difficulty in reading English spelt phonetically, when once the new alphabet has been learned, as any student may prove for himself by learning the alphabet, given by Max Müller in the essay already referred to, and by reading the passage which follows. It is found by experience that children, who are taught on the phonetic principle, learn English very quickly, and experience no difficulty in reading books printed in the old way, if they have occasion to do so.

¹⁷ *Simple ciphers*, those in which each letter is replaced by another, in accordance with a secret alphabet. E. For instance, two men, who wished to carry on a correspondence, might agree to begin the alphabet at *f*, so that *f*, should stand for *a*.

¹⁸ *With changes, &c.* The simple cipher was modified in various ways, as, for instance, by the introduction of 'nulls,' or words which conveyed no meaning, *i.e.* which those who had the key to the cipher would understand to be introduced, merely to mislead those for whom the writing was not intended, if it should fall into their hands.

¹⁹ *Rule of the infolding*, *i.e.* the principle on which the contents of the writing are concealed. The literal meaning of *infolded* is *wrapped up*. Cp. p. 79, n. 94.

²⁰ *Wheel-ciphers*, in which the ordinary alphabet and a secret one are written respectively on the rim of two concentric discs, so that each letter of the first corresponds in each position of the second (which is movable) to a letter of the secret alphabet. Thus in each position of the movable disc we have a distinct cipher, and in using the instrument this disc is made to turn through a given angle after each letter has been written. The *key-cipher* is a cipher of position; that is, one in which the difficulty is obtained not by replacing the ordinary alphabet by a new one, but by deranging the order in which the letters of a sentence or paragraph succeed each other. This is done according to a certain form of words or series of numbers which constitute the key. The

they are to be preferred, are three ; that they be not laborious to write and read ; that they be impossible to decipher ; and, in some cases, that they be without suspicion. The²¹ highest degree whereof is to write *anything under cover of anything* ; which is undoubtedly possible with a proportion quintuple at most of the writing infolding to the writing infolded, and no other restraint whatsoever. This art of ciphering hath for relative an art of deciphering, by supposition²² unprofitable, but, as things are, of great use. For suppose that

cipher of words, which Bacon alludes to in l. 2, consists in arranging words in columns, the words in each column representing a separate letter of the alphabet. E.

²¹ *The highest degrec whercof, &c., i.e.* the surest way of preventing their being discovered is to write, &c. In the *De Aug.* Bacon gives an example of this kind of cipher, which he invented himself. In the first place he represents each letter of the ordinary alphabet, by a separate combination of the letters *a* and *b*, each combination containing five letters. Thus, A = *aaaaa*: B = *aaaab*: C = *aaaba*, &c. He then takes all the letters of the alphabet, capital and small, and writes each of them, once in the ordinary way, and once in a special way, thus; A, **A**, **B**, **B**, *a*, *a*, *b*, *b*, &c. Of these letters, thus written, some are made to stand for *a*, others for *b*. For instance, A = *a*: **A** = *b*: *a* = *a*: *a* = *b*, &c. He then, employing these characters, writes a letter on some indifferent subject, contrived in such a way that the secret message can be read by any one who can substitute for the characters the combinations of *a* and *b*, which they represent. The only condition, as he says in the text, necessary to this cipher is, that the number of letters contained in the whole communication must be five times as great as the number of letters in the secret communication which is *infolded* in it. The particular merit of this cipher is, he says, that there is no reason why a person into whose hands a letter, thus written, may fall, should suspect that there is anything more in it, than appears on the surface. This cipher belongs to the class of what he calls on p. 267, l. 1, *ciphers in alphabets*. By *ciphers in letters*, he means those in which a man takes two alphabets, written in different ways. The letters written in one way are significant, those written in the other way non-significant. A person, who has the key to the cipher, will pick out the significant letters. If a person in authority gets hold of such a cipher, and presses for the key of it, the author may deceive him by saying that the significant letters are the non-significants, and *vice versa*. Thus ciphers in alphabets, such as Bacon's cipher, differ from *ciphers in letters* in this, that in the former all the letters are significant.

²² *By supposition, i.e.* on the supposition that people employ good ciphers. In the *De Aug.* he says: "Good, and at the same time convenient ciphers, might be invented, which would baffle all attempts to decipher them; but the secretaries and amanuenses employed in courts of princes are so unskilful,

ciphers were well managed, there be multitudes of them which exclude the decipherer. But in regard of the rawness and unskilfulness of the hands through which they pass, the greatest matters are many times carried in the weakest ciphers.

7. In the enumeration of these private and retired arts, it may be thought I seek to make a great muster-roll of sciences, naming them for show and ostentation, and to little other purpose. But let those which are skilful in them judge whether I bring them in only for appearance, or whether in that which I speak of them (though in few words) there be not some seed of proficience. And this must be remembered, that as there be many of great account in their countries and provinces, which, when they come up to the seat of the estate,²³ are but of mean rank and scarcely regarded; so these arts, being here placed with the principal and supreme sciences, seem petty things; yet to such as have chosen them to spend their labours and studies in them, they seem great matters.

XVII. Pp. 270—281. The next point to be considered is the proper *method* of communicating knowledge. That method is the best, which is the most suggestive; but the means of making instruction suggestive, as well as useful, have not been considered. Masters are content to communicate opinions, and pupils to receive them. If the knowledge, which the master communicates, is to bear fruit in the mind of the pupil, it should be communicated in the same order in which it was attained, that the pupil may see on what foundation it rests. A transplanted tree will not grow, if it be transplanted without its roots. Again, a master may instruct his most intelligent pupils in a manner that would be unintelligible to the general public. This method, however, has been abused by many, who have employed ambiguous and enigmatical language to conceal their own ignorance. Again, a man may convey his opinions in aphorisms. If he can do this, he must needs be a sound man; for he is deprived of the resources of illustration and ornament, so that, if his doctrine be accepted, it must be on account of the weight of evidence, by which it is supported. Aphorisms, moreover, have this advantage, that they are more easily applied in practice. They also suggest further inquiry. The scholastic method of first raising questions, and then answering them, is a bad one; it leads men to busy themselves with unnecessary details, to the great prejudice of learning. Further, the method of teaching must be appropriate to the subject; otherwise truth will be sacrificed to form. Again, a new subject requires a wealth of illustration, which a familiar subject can dispense

and so ignorant, that very often the most important affairs are entrusted to weak and futile ciphers."

²³ *The seat of the estate*, the metropolis.

with. There are other subordinate distinctions of method which are too well-known to need discussion. My only object, says Bacon, is to establish sound principles of teaching. Since knowledge is communicated in propositions, it is essential to consider the limits, within which propositions hold good. Ramus did well to consider this subject, but the method of dichotomy, which he was led to, has hindered the advancement of learning. It is important, also, to consider how far different sciences can be taught independently ; and with what degree of minuteness teaching should be accommodated to practice. Perhaps, we may say that the teaching of science should be capable of being adapted to practice, in the same way that steel, if polished, may be made to serve as a mirror. The method of Lully is absolutely bad, being calculated only to enable an ignorant man to make a show of learning.

XVII. I. For the method of tradition, I see it hath moved a controversy²⁴ in our time. But as in civil business, if there be a meeting, and men fall at words,²⁵ there is commonly an end of the matter for that time, and no proceeding at all ; so in learning where there is much controversy, there is many times little inquiry. For this part of knowledge of method seemth to me so weakly inquired as I shall report it deficient.

2. Method hath been placed²⁶ and that not amiss, in logic, as a part of judgement. For as the doctrine of syllogisms comprehendeth the rules of judgement upon that which is invented, so the doctrine of method containeth the rules of judgement upon that which is to be delivered ; for judgement precedeth delivery, as it followeth invention. Neither is the method or the nature of the tradition material only to the use of knowledge, but likewise to the progression of knowledge : for since the labour and life of one man cannot attain to perfection of knowledge, the wisdom of the tradition is that which inspirereth the felicity of continuance and proceeding.²⁷ And therefore the most

²⁴ *It hath moved a controversy*, It had been discussed, especially, by Peter Ramus, who was born in Picardy in 1515. He condemned, in the most vehement language, the logic of Aristotle, principally on the ground that it does not reflect the natural process of thought. He thought that our knowledge should be exhibited in the same order in which we obtained it. (See p. 271, § 4.) His own method was based on the principle of exhausting a subject by analytical classification of its parts. See Whewell's *Philosophy of Discovery*, ch. 13.

²⁵ *Fall at words*, dispute.

²⁶ *Method hath been placed, &c. viz.*, by Ramus.

²⁷ *Which inspirereth, &c.*, i.e. which enables the pupil to use what he learns as a stepping-stone to further discoveries.

real²⁸ diversity of method is of method referred to use,²⁹ and method referred to progression : whereof the one may be termed magistral,³⁰ and the other of probation.

3. The latter whereof seemeth to be *a way that has been abandoned and shut up*. For as knowledges are now delivered, there is a kind of contract of error between the deliverer and the receiver. For he that delivereth knowledge, desireth to deliver it in such form as may be best believed, and not as may be best examined ; and he that receiveth knowledge, desireth rather present³¹ satisfaction, than expectant inquiry ; and so rather not to doubt, than not to err : glory³² making the author not to lay open his weakness, and sloth making the disciple not to know his strength.

4. But³³ knowledge that is delivered as a thread to be to spun on, ought to be delivered and intimated, if it were possible, in the same method wherein it was invented : and so is it possible of knowledge induced.³⁴ But in this same anticipated and prevented³⁵ knowledge, no man knoweth how he came to the knowledge which he hath obtained. But yet nevertheless, *in a greater or less degree*, a man may revisit and descend unto the foundations of his knowledge and

²⁸ *Real*, essential : important.

²⁹ *Referred to use*, having for its object to enable the pupil to make use of his knowledge.

³⁰ *Magistral*, see p. 61, n. 79, and p. 195, n. 67. He says in the *De Aug.* : "The magistral method teaches; the method of probation suggests. The first aims at securing assent: the second invites criticism." *Probation* here is equivalent to *proof*. The 'method of probation' is in the *De Aug.* called 'the Initiative method,' or 'the method addressed to sons,' i.e. to those who are fitted to carry on the task of discovery. It is more profound than the magistral method, and exhibits the processes by which truth is arrived at.

³¹ *Present*, immediate.

³² *Glory*, the desire of reputation. With this passage cp. pp. 53-4, § 12, and p. 61, § 9.

³³ This is not necessary. A treatise will generally begin with a definition, and rightly so: though the definition is the last point attained by the investigator. It is, of course, necessary that the evidence for the definition should be set forth in the treatise: otherwise we have no guarantee that it is supported by any evidence at all.

³⁴ *Induced*, p. 237, n. 23.

³⁵ *Anticipated and prevented*, premature. 'Prevented' knowledge is knowledge which comes before the evidence on which it should rest. See p. 58, n. 60, and p. 173, n. 42. By this same, Bacon means the science of the present day, which he criticized on p. 235, § 3.

consent³⁶; and so transplant it into another, as it grew in his own mind. For it is in knowledges as it is in plants: if you mean to use the plant, it is no matter for³⁷ the roots; but if you mean to remove it to grow, then it is more assured to rest upon³⁸ roots than slips: so the delivery of knowledges (as it is now used) is as³⁹ of fair bodies of trees without the roots; good for the carpenter, but not for the planter. But if you will have sciences grow, it is less matter for the shaft or body of the tree, so⁴⁰ you look well to the taking up of the roots. Of which kind of delivery the⁴¹ method of the mathematics, in that subject, hath some shadow: but *Of the method "to sons."* generally I see it neither put in ure nor put in inquisition,⁴² and therefore note it for deficient.

5. Another diversity of method there is which hath some affinity with the former,⁴³ used⁴⁴ in some cases by the discretion of the

³⁶ Consent, belief. He expresses the same thing in the *De Aug.* thus—"A man may retrace the steps by which he was led to the belief which he holds."

³⁷ It is no matter for, it does not matter what becomes of the roots. Cp. "It is less matter for the shaft."

³⁸ It is more assured, it is safer. To rest upon, to rely upon. Slips, cuttings. A very important truth underlies these remarks of Bacon, namely, that the value of education lies, not so much in the knowledge which it communicates, as in the power which it gives to a man of reasoning for himself. As Socrates used to say, knowledge should not be put into a man, but drawn out of him.

³⁹ Is as of, &c., communicates, as it were fair bodies. By the present system of teaching, men obtain knowledge ready for use, not knowledge that will grow.

⁴⁰ So, provided that.

⁴¹ In a demonstration in Euclid, each step in the proof is exhibited.

⁴² Men have neither used nor tried to discover such a method. For ure, cp. p. 234, n. 99. In Mansel's *Aldrich* we find, "Other arts and sciences may imitate even if they cannot altogether adopt the method of the mathematicians. The more nearly a science approaches that method, the more perfect it is, and the more fitted for teaching." P. 130.

⁴³ In the *De Aug.* he explains that the affinity between the *method of probation* and the *enigmatical method* lies simply in this, that both are addressed to a select audience. Otherwise the two methods are opposed; for the method of probation is more open than ordinary, the enigmatical method more obscure.

⁴⁴ Bacon is thinking of the exoteric and esoteric discourses of Aristotle; of which the former were addressed to the general public, and dealt with less difficult subjects, while the latter treated of more abstruse subjects, and were addressed to a select band of disciples. The words *exoteric* and *esoteric*

ancients, but disgraced since by the impostures of many vain persons, who have made it as a false light for their counterfeit merchandises ; and that is, enigmatical and disclosed. The pretence⁴⁵ whereof is, to remove the vulgar capacities from being admitted to the secrets of knowledges, and to reserve them to selected auditors, or wits of such sharpness as can pierce the veil.

6. Another diversity of method, whereof the consequence is great, is the delivery of knowledge in aphorisms, or in methods⁴⁶ ; wherein we may observe that it hath been too much taken into custom, out of a few axioms⁴⁷ or observations upon any subject, to make a solemn and formal⁴⁸ art, filling it with some discourses, and illustrating it with examples and digesting it into a sensible⁴⁹ method. But the writing in aphorisms hath many excellent virtues, whereto the writing in method doth not approach.

7. For first, it trieth the writer, whether he be superficial or solid : for aphorisms, except they should be ridiculous, cannot be made but of the pith and heart of sciences ; for discourse of illustration is cut off ; recitals of examples are cut off ; discourse of connexion and order is cut off ; descriptions of practice are cut off. So there remaineth nothing to fill the aphorisms but some good quantity of observation : and therefore no man can suffice, nor in reason will attempt, to write aphorisms, but he that is sound and grounded. But in methods,

*So much may order and arrangement do,
To make the cheap seem choice, the threadbare new,*

literally *outward* and *inward*, and were applied respectively to subjects which all, and subjects which only a few, could understand. Bacon says that besides the method of *writing* enigmatically, which was employed by the ancients, there may be an enigmatical method of *teaching*—an ‘auricular tradition.’ It must, however, be employed honestly, ‘for the avoiding of abuse in the excluded, and the strengthening of affection in the admitted,’ and not as a device for veiling impostures. See p. 52, notes 27 and 28.

⁴⁵ *The pretence*, the object. Bacon at one time proposed to reserve his own formula for the interpretation of nature for ‘selected auditors,’ or minds ‘chalked or marked up’ by truth as ‘capable to lodge and harbour it’ (p. 193) ‘i.e. for those minds which had been prepared by his writings to receive and make a proper use of his method.’ See Spedding’s Preface to the *Nov. Org.*, Note B.

⁴⁶ *Methods*, p. 58, n. 61. With the whole of this passage, cp. p. 58, § 4.

⁴⁷ *Axioms*, p. 237, n. 22.

⁴⁸ *Formal*, complete.

⁴⁹ *Sensible*, plausible : literally ‘striking the senses.’ Cp. p. 165, n. 15.

as a man shall make a great show of an art, which, if it were disjointed,⁵⁰ would come to little. Secondly, methods are more fit to win consent or belief, but less fit to point to action ; for⁵¹ they carry a kind of demonstration in orb or circle, one part illuminating another, and therefore satisfy. But particulars being dispersed⁵² do best agree with dispersed directions. And lastly, aphorisms, representing a knowledge broken,⁵³ do invite men to inquire further ; whereas methods, carrying the show of a total, do secure⁵⁴ men, as if they were at furthest.

8. Another⁵⁵ diversity of method, which is likewise of great weight, is the handling of knowledge by assertions and their proofs, or by questions and their determinations. The latter kind whercof, if it be immoderately followed, is as prejudicial to the proceeding of learning, as it is to the proceeding of an army to go about to besiege every little fort or hold. For if the field be kept,⁵⁶ and the sum⁵⁷ of the enterprise pursued, those smaller things will come in⁵⁸ of themselves : indeed⁵⁹ a man would not leave some important piece⁶⁰ enemy at his

⁵⁰ *Disjointed*, taken to pieces, so that each part might be criticised on its own merits.

⁵¹ See p. 47, l. 1, sq., and p. 196, l. 19, and cp. p. 253, n. 64.

⁵² *Particulars being dispersed, &c.* We cannot classify or reduce to system the actions which a man may have to perform in his life ; he requires directions as the necessity for action arises. What Bacon says is quite true. It is impossible to frame a science of practice, which shall guide a man in all the variety of circumstances, under which he may be called upon to act.

⁵³ *Broken*, p. 11, n. 52.

⁵⁴ *Do secure*, make men feel secure, as if they knew all that is to be known on the subject. Bacon expounded his own method of interpreting nature in aphorisms.

⁵⁵ For an explanation of this paragraph, see my notes on p. 45, § 6.

⁵⁶ *If the field be kept*, if the army maintain its superiority in battle.

⁵⁷ *The sum*, the main object.

⁵⁸ *Come in*, surrender.

⁵⁹ *Indeed*, i.e., although indeed. In the *De Aug.* he says : "I will not however deny that it is unsafe to leave," &c. Bacon means to say that, just as a general can afford to despise small forts, though he cannot safely leave any large city unsubdued in his rear, so a teacher must remove all serious difficulties or prejudices (*preoccupations and prejudices*) which will prevent his pupil's progress, but must not go out of his way to seek difficulties merely for the sake of overthrowing them.

⁶⁰ *Piece*, a fortified place. Cp.—

Thus these twelve troupes with dreadful puissance
Against that castle restlesse siege did lay.

back. In like manner, the use of confutation in the delivery of sciences ought to be very sparing ; and to serve to remove strong preoccupations and prejudgements, and not to minister and excite disputationes and doubts.

9. Another diversity of method is, according to the subject or matter which is handled. For there is a great difference in delivery of the mathematics, which are the most abstracted⁶¹ of knowledges, and policy, which is the most immersed.⁶² And⁶³ howsoever contention hath been moved, touching an uniformity of method in multiformity of matter, yet we see how that opinion, besides the weakness of it, hath been of ill desert towards learning, as that which

And evermore their wicked capitayn
Provoked them the breaches to assay,
Sometimes with threats, sometimes with hope of gayn,
Which by the ransack of that *piece* they should attayn.

Faerie Queene, 2, xi. 14.

⁶¹ *Abstracted*, p. 183, n. 93. *Policy*, p. 136, n. 33.

⁶² *Immersed*, concrete. Abstract theories in politics are worthless. Cp. Burke. "I cannot stand forward and give praise or blame to any thing which relates to human actions, and human concerns, on a simple view of the object as it stands stripped of every relation, in all the nakedness and solitude of metaphysical abstraction. Circumstances (which with some gentlemen pass for nothing) give in reality to every political principle its distinguishing colour, and discriminating effect."—*Reflections on the Revolution in France*.

⁶³ Bacon is alluding to the method of Ramus, (p. 270, n. 24.) which was an attempt to exhibit the contents of all the sciences, classified on a uniform principle, viz., that of dichotomy. Bacon justly remarks that this attempt to introduce uniformity, when uniformity in nature does not exist, is fatal to the growth of science, since facts are made to accommodate themselves to the exigencies of method. Aristotle pointed out the great defect of the method of dichotomy, viz., that the information which it conveys about one of the classes is purely negative. For instance, if we divide animals into vertebrata and non-vertebrata, all that we learn about the second class is that they are not vertebrata. Moreover, Prof. Owen (quoted by Ellis) remarks in his lecture on the Invertebrata, that no class thus constituted has ever been found satisfactory. Scientific classification requires that those animals shall be classed together, which resemble one another in essential points, and which are distinguished, in essential points, from other animals. No advantage is gained by huddling together into one class a number of animals so heterogenous as the invertebrata. All objects should be arranged in such classes as will convey, or render it easiest to obtain, the greatest possible amount of information about them : and therefore each science must classify the objects with which it deals, according to the peculiarities which they present in nature.

taketh the way to reduce learning to certain empty and barren generalities ; being but the very husks and shells of sciences, all the kernel being forced out and expulsed with the torture and press of the method. And therefore as I⁶⁶ did allow well of particular topics for invention, so I do allow likewise of particular methods of tradition.

10. Another diversity of judgement⁶⁷ in the delivery and teaching of knowledge is, according⁶⁸ unto the light and presuppositions of that which is delivered. For that knowledge which is new, and foreign from opinions received, is to be delivered in another form than that that is agreeable and familiar ; and therefore Aristotle, when he thinks to tax Democritus,⁶⁹ doth in truth commend him, where he saith, *If we shall indeed dispute, and not follow after similitudes, &c.* For those whose conceits⁷⁰ are seated in popular opinions, need only but to prove or dispute ; but those whose conceits are beyond popular opinions, have a double labour ; the one to make themselves conceived, and the other to prove and demonstrate. So that it is of necessity with them to have recourse to similitudes and translations to express themselves.⁷¹ And⁷² therefore in the infancy of learning, and in rude times, when those conceits which are now trivial were then new, the world was full of parables and similitudes ; for else would men either have passed over without mark, or else rejected for paradoxes that which was offered, before they had understood or judged. So in divine learning, we see how frequent parables and tropes are : for it is a rule, that whatsoever science is not consonant to presuppositions, must pray in aid of⁷³ similitudes.

⁶⁶ See p. 246, § 10. For *allow*, see p. 27, n. 47.

⁶⁷ *Diversity of judgement*, i.e. as he explains in the *De Aug.*, 'a diversity of method to be applied with judgement.'

⁶⁸ *According unto*, i.e. depending on the amount of previous information, which the pupils possess, about that which they are to be taught.

⁶⁹ Aristotle, in the passage quoted below, is referring not to Democritus, but to Plato, who, in his *Theætetus*, employs a number of similes to illustrate the nature of knowledge.

⁷⁰ *Whose conceits, &c.*, i.e. whose ideas have already obtained a place in, or become familiar to, &c.

⁷¹ *Translations*, p. 88, n. 73. *To express themselves, to make themselves understood.*

⁷² Cp. pp. 145-6, § 3, and p. 229, l. 3, sq.

⁷³ *Pray in aid of*, call in the assistance of.

11. There be also other diversities of methods vulgar and received : as that of resolution or analysis,⁷² of constitution or systasis, of concealment or cryptic, &c., which I do allow⁷³ well of, though I have stood upon those which are least handled and observed. All

Of wisdom which I have remembered⁷⁴ to this purpose, because of tradition. I would erect and constitute one general inquiry (which seems to me deficient) touching the wisdom of tradition.

12. But⁷⁵ unto this part of knowledge, concerning method, doth further belong not only the architecture of the whole frame of a work, but also the several beams and columns thereof ; not as to their stuff, but as to their quantity and figure. And therefore method considereth not only the disposition of the argument or subject, but likewise the propositions : not as to their truth or matter, but as to their limitation

⁷² Analysis and systasis are the Greek equivalents of the Latin words resolution and constitution. Instead of systasis we generally use the equivalent word synthesis. In the logic of the Schools, synthetic and analytic seem both to have denoted the process from the universal to the particular ; the difference between them being that the synthetic method was employed in teaching sciences, the analytic method in teaching arts. For instance, in Geometry, the synthetic method begins with the general subject of the science, viz., magnitude : it then proceeds to the axioms of the science : and finally to the *species* or sub-divisions of the general subject, such as the square, the triangle, &c. The analytic method begins with the idea of an end or whole, and then considers how it may be realized. For instance, in building, we begin with the notion of a house, which is the end : we then consider the material out of which it is constructed : and finally the means by which it is to be constructed. The meaning of the terms as we now employ them is as follows. The analytical method begins with the whole, and decomposes it into its parts : the synthetical method begins with the parts, and out of them constructs the whole. For instance, a treatise on logic may begin with the syllogism, and proceed from it to propositions, and from propositions to terms, in which case it analyses, i.e. decomposes the syllogism into its parts ; or it may begin with the term and ascend gradually to the syllogism, in which case it constructs (synthesis = construction) the whole out of its parts. *Cryptic* is the Greek equivalent of concealment.

⁷³ Allow, p. 276. n. 64. *Stood upon*, p. 11, n. 51.

⁷⁴ Remembered, p. 145, n. 1.

⁷⁵ This is expressed more clearly in the *De Aug.* : " Method has two parts, the one considering the arrangement of the whole work, or of the argument of a book, the other the extent of propositions. For architecture is concerned not only with the structure of the whole building, but also with the form and shape of the columns, beams, &c. Now, method is, as it were, the architecture of the sciences : and therefore," &c. *Stuff*, material.

and manner. For⁷⁰ herein Ramus merited better a great deal in reviving the good rules of propositions, *True generally, true primarily, &c.*, than he did in introducing the canker of epitomes⁷¹; and yet (as it is the condition of human things that according⁷² to the ancient fables, *the most precious things have the most pernicious keepers*) it was so, that the attempt of the one made him fall upon the other.⁷³ For

⁷⁰ Ramus laid down three rules, based on certain logical distinctions drawn by Aristotle, to which, he said, the principles of every science should conform. These rules were—(i.) A proposition must be true *generally*, i.e. in all cases. In other words, the predicate must be capable of being affirmed of the subject, in all cases, and at all times; (ii.) it must be true *primarily*, i.e. the predicate must be true of the subject always, and because the subject is what it is. In this sense, the property of having its angles equal to two right angles is predicable of a triangle. In this case, of course, the proposition is convertible, (see p. 279, l. 1, sq.); (iii.) it must be true *essentially*, this condition is fulfilled when the two things are so connected, that one is involved in the definition of the other. Bacon, in his *Interpretation of Nature*, adopted the two first of these rules, which he says are fulfilled by all propositions, asserting one quality to be the *form* of another. Such propositions fulfil the first rule, because they are true in all cases. The effect will follow the *form* at all times, and in all cases. They fulfil the second rule, because the form and the effect are convertible. The presence of either implies that of the other. And this, he says, is the practical application of the rule. See Ellis' Preface to *Valerius Terminus*, Vol. 3, p. 203. (I have used the term *form* here instead of the term *direction*, which Bacon uses in the *Interpretation of Nature*; in order to explain Bacon's general meaning by a term, which students already understand.)

⁷¹ *The canker of epitomes*, By epitomes Bacon means those abridgments of science which were effected by the dichotomizing method of Ramus. See p. 275, n. 63. The abridgment was twofold. In the first place, one method of classification was made common to all the sciences; in the second place, the number of classes in each science was diminished. Thus, to take the instance given in the note just referred to, a large number of natural classes are forced into the one class of Invertebrata. These epitomes are the *canker* of science, because, though they present the sciences in a compendious form, they are, as I have already explained, prejudicial to science. They stop the growth of science, as a canker stops the growth of a tree. Cp. p. 128, l. 5, sq.

⁷² Wright conjectures that Bacon is referring to the dragons which kept the garden of the Hesperides and the Golden Fleece.

⁷³ The result of his attempt to make the axioms, i.e. the propositions of science convertible was, that he made science shallow; for, as Bacon goes on to say, unless a man is very fortunate (*well conducted*), he will find that his convertible propositions are merely verbal, and, therefore, contribute nothing to the sum of knowledge. *Circular and incurring* (i.e. running) *into themselves*, are equivalent terms, and signify *identical propositions*. *Non-promovent* means

he had need be well conducted that should design to make axioms convertible, if he make them not withal circular, and non-promovent, or incurring into themselves ; but yet the intention was excellent.

13. The other considerations of method, concerning propositions, are chiefly touching the *utmost*⁸⁰ propositions, which limit the dimensions of sciences : for every knowledge may be fitly said, besides the profundity (which is the truth and substance of it, that makes it solid), to have a longitude and a latitude ; accounting⁸¹ the latitude towards other sciences, and the longitude towards action ; that is,⁸² from the greatest generality to the most particular precept. The⁸³ one giveth rule how far one knowledge ought to intermeddle within

contributing nothing to the advancement of science. What Bacon says is true ; a proposition of which the terms are convertible, is *very likely* to be a mere verbal proposition, as, for instance, in the case of a definition. Indeed, Ramus' third rule can be fulfilled only by definitions. Of this rule, however, Bacon does not express his approval. The second rule is fulfilled by all propositions, in which the predicate is a property of the subject ; or in which the quality denoted by the predicate is peculiar to the subject. If the student will refer to Sidgwick's *Methods of Ethics*, Bk. 3, ch. 13, he will find several instances of propositions, which have long been regarded as valuable in Ethics, but which turn out, on examination, to be *circular* and *non-promovent*.

For the original meaning and limitations of these rules as they occur in the works of Aristotle, and for the erroneous applications of them made by the School Logicians. See Mansel's *Aldrich*, Appendix, Note K.

⁸⁰ *Utmost*, the extreme propositions : i.e. those which constitute the limits of any science, in either direction : on the one hand, its widest generalisations, on the other hand, the narrowest assertions to which it descends. For instance, the *utmost* propositions of Utilitarian Ethics are, on the one hand, the assertion that actions are right in proportion to the happiness which they produce : on the other hand, the minutest direction, that the science gives, to secure the right application of the principle.

⁸¹ For instance, where are we to draw the line between ethics and psychology ? Can the question of the origin of the moral faculty be dismissed altogether from ethics, and assigned to psychology ?

⁸² *That is——precept*, These words refer to *longitude* only. By longitude, he says, I mean the interval which divides the widest generalisation from the most particular precept, *in one and the same science*.

⁸³ In the *De Aug.* he says : "Propositions must be discussed in their appropriate place, and not casually ; all repetition, digression, and confusion must be avoided." This is not a rule, which can be very strictly observed, because, as he himself has said, "all partitions of knowledge are to be accepted rather for lines and veins than for sections and separations." See p. 199.

the province of another, which⁸⁴ is the rule they call *true essentially*; the other giveth rule unto what degree of particularity a knowledge should descend: which latter I find passed over in silence, being in my judgement the more material. For certainly there must be somewhat left to practice, but how much is worthy the inquiry. We see remote⁸⁵ and superficial generalities do but offer knowledge to scorn of practical men; and are no more aiding to practice, than an Ortelius' universal⁸⁶ map is to direct the way between London and York. The better sort of rules have been not unsitly compared to glasses of steel unpolished, where you may see the images of things, but first they must be filed: so the rules will help, if they be laboured

Of the application of axioms. and polished by practice. But how crystalline⁸⁷ they may be made at the first, and how far forth they may be polished beforehand is the question; the inquiry whereof seemeth to me deficient.

14. There hath been also laboured and put in practice a method, which is not a lawful method, but a method of imposture; which is, to deliver knowledges in such manner, as men may speedily come to make a show of learning who have it not. Such⁸⁸ was the travail of

⁸⁴ This is the last of Ramus' three rules. See above, n. 76. Bacon means no more by it here, than that a strict proof must be given of every proposition in its proper place. Men must not be content with the probabilities, for and against, that can be gathered from various sources.

⁸⁵ *Remote*, viz., from particulars. Generalisations which it is difficult to apply in practice.

⁸⁶ See p. 137, n. 38.

⁸⁷ *Crystalline*, clear. As applied to rules, it means 'giving clear directions for practice.'

⁸⁸ The fundamental idea of Lully's method was to arrange all terms, or, at any rate, all the terms of one science, in classes, according to the nature of the conceptions which they represented, and then to invent a mechanical process by which all possible combinations of these terms might be attained. We should thus obtain all possible propositions, which would be equivalent to complete knowledge. It is evident that such a method affords no criterion of the truth of the propositions obtained. The following satire on this and similar methods occurs in Swift's description of the Academy of Laputa: "The professor, observing me to look earnestly upon a frame, which took up the greatest part of the length and breadth of the room, said perhaps I might wonder to see him employed in a project for improving speculative knowledge by practical mechanical operations. But the world would soon be sensible of its usefulness..... Every one knew how laborious the usual method is of attaining to arts and sciences; whereas by his contrivance the most ignorant person, at a reasonable charge, and with little bodily labour, might write

Raymundus Lullius, in making that art which bears his name; not unlike to some books of typocosmy,⁸⁹ which have been made since; being nothing but a mass of words of all arts, to give men countenance,⁹⁰ that those which use the terms might be thought to understand the art; which collections are much like a fripper's⁹¹ or broker's shop, that hath ends⁹² of everything, but nothing of worth.

XVIII. Pp. 282—288. The last point to be considered in connection with *tradition* is eloquence, the possession of which is a great help to success in life. The treatises on rhetoric, which we have, are excellent. Bacon proposes to consider the function of rhetoric, and the sources of its power, and to note one or two minor deficiencies in the treatment of it. It was unjust in

books in philosophy, poetry, politics, law, mathematics, and theology, without the least assistance from genius or study. He then led me to the frame, about the sides whereof all his pupils stood in ranks. It was twenty feet square, placed in the middle of the room. The superficies was composed of several bits of wood, about the bigness of a die, but some larger than others. They were all linked together by slender wires. These bits of wood were covered on every square with paper pasted on them; and on these papers were written all the words of their language, in their several moods, tenses, and declensions, but without any order. The professor then desired me to observe; for he was going to set his engine at work. The pupils, at his command, took each of them hold of an iron handle, whereof there were forty fixed round the edges of the frame; and, giving them a sudden turn, the whole disposition of the words was entirely changed. He then commanded six and thirty of the lads to read the several lines softly, as they appeared upon the frame; and when they found three or four words together that might make parts of a sentence, they dictated to the four remaining boys, who were scribes. This work was repeated three or four times, and at every turn the engine was so contrived, that the words shifted into new places, as the square bits of wood moved upside down. Six hours a day the young students were employed in this labour: and the professor showed me several volumes in large folio already collected, of broken sentences which he intended to piece together, and, out of these rich materials, to give the world a complete body all arts and sciences; which, however, might be still improved, and much expedited, if the public would raise a fund for making and employing five hundred such frames in Lagado, and oblige the managers to contribute in common their several collections."

Lully was a native of Majorca, where he died in 1315.

⁸⁹ *Typocosmy*, a Greek word signifying *an arrangement of figures*. Bacon is referring to the many books which were published, exhibiting mechanical contrivances for attaining knowledge, devised in imitation of Lully.

⁹⁰ To give men countenance, i. e. assurance.

⁹¹ A fripper, a dealer in old clothes.

⁹² Ends, fragments.

Plato to charge rhetoric with corrupting man's moral taste; for, though it is true, that man's reason is often misled by his imagination, still the function of rhetoric is so to work upon the imagination, as to make it the ally of reason. In the same way, the business of logic is to teach men, not to use worthless arguments, but to avoid them. It is very difficult for a man, however eloquent, to make out a plausible case in favour of vice; but to fill the imagination with the charms of virtue is both easy and profitable. Eloquence, moreover, promotes morality by vividly depicting the future consequences of actions, and so enabling us to resist our passions, which would have us enjoy the present, without thought of the future. Rhetoric differs from logic in that its arguments are only probable, and that it accommodates its arguments to its hearers. The more completely it can do this, the more perfect it is. Success, in this respect, depends on a knowledge of human life and character. The defects which Bacon notices in the treatment of rhetoric are three. Firstly, writers on rhetoric should have followed the precedent set by Aristotle, and made a complete list of popular fallacies, with the refutations of them, studying, especially, to make the refutations as impressive as possible. Secondly, they should have drawn out arguments in outline, on both sides of questions, which frequently arise in discussion, that men might have filled them up, and applied them, as necessity arose. Thirdly, they should have supplied men with appropriate expressions for the beginning and end of speeches, for introducing digressions, apologies, &c.

XVIII. I. Now we descend to that part which concerneth the illustration of tradition, comprehended in that science which we call rhetoric, or art of eloquence; a science excellent, and excellently well laboured. For although in true value it is inferior to wisdom, as it is said by God to Moses, when he disabled⁹³ him for want of his faculty, *Aaron shall be thy speaker and thou shalt be to him as God;* yet with people it is the more mighty: for so Salomon saith, *The wise in heart shall be called prudent, but sweetness of speech attains greater things;* signifying that profoundness of wisdom will help a man to a name or admiration, but that it is eloquence that prevaleth in an active life. And as to the labouring of it,⁹⁴ the emulation of Aristotle with the rhetoricians of his time, and the experience of Cicero, hath made them in their works of rhetorics exceed themselves. Again, the excellency of examples of eloquence in the orations of Demosthenes and Cicero, added to the perfection of the precepts

⁹³ *Disabled*, p. 239, n. 32. When God ordered Moses to command Pharaoh to liberate the Jews from captivity, Moses excused himself on the ground that he was not a good speaker. Accordingly God said to him, your brother Aaron shall speak for you, and you shall be to him as God, i.e. you shall inspire him.

⁹⁴ As to the labouring of it, as to the degree to which the art of rhetoric has been elaborated.

of eloquence, hath doubled the progression in this art; and therefore the deficiencies which I shall note will rather be in some collections,⁹⁵ which may as handmaids attend the art, than in the rules or use of the art itself.

2. Notwithstanding, to stir the earth a little about the roots of this science, as we have done of the rest; the duty and office of rhetoric is to apply⁹⁶ reason to imagination for the better moving of the will. For we see reason is disturbed in the administration thereof⁹⁷ by three means; by illaqueation or sophism,⁹⁸ which pertains to logic; by imagination⁹⁹ or impression, which pertains to rhetoric; and by passion or affection,¹ which pertains to morality.² And as in negotiation with others, men are wrought³ by cunning, by importunity, and by vchemency; so in this negotiation within ourselves, men are undermined by inconsequencies,⁴ solicited and importuned by impressions or observations,⁵ and transported by passions. Neither is the nature of man so unfortunately built, as that those powers and arts should have force to disturb reason, and not to establish and advance it. For the end of logic⁶ is to teach a form of argument to secure reason, and not to entrap it. The end of morality is to procure the affections to obey reason, and not to invade it. The end of rhetoric is to fill the imagination to second reason, and not to oppress it: for these abuses of arts come in but *indirectly*, for caution.

3. And therefore it was great injustice in Plato, though springing out of a just hatred to the rhetoricians of his time, to esteem of rhetoric but as a voluptuary art, resembling⁷ it to cookery, that did

⁹⁵ Collections, viz., of *antitheta*, *formulae*, &c.; see below, §§ 6-9.

⁹⁶ To apply, to recommend. In the *De Aug.* he says, "Rhetoric is to the imagination what logic is to the understanding. Its business is to recommend the dictates of reason to the imagination, in order to direct our will and desires towards the objects which reason recommends." Cp. p. 228, § 1.

⁹⁷ Thereof, cp. p. 73, n. 50.

⁹⁸ Illaqueation or sophism, p. 251, n. 7, and 8.

⁹⁹ By imagination, see p. 253, § 3.

¹ Affection, p. 100, n. 64.

² Morality, moral philosophy.

³ Wrought, influenced.

⁴ Inconsequencies, p. 250, n. 4.

⁵ Impressions or observations, i.e. false impressions produced by words.

⁶ End of logic, &c., see p. 250, §§ 4 and 6.

⁷ Resembling, comparing.

mar wholesome meats, and help unwholesome by variety of sauces to the pleasure of the taste. For we see that speech is much more conversant in⁸ adorning that which is good, than in colouring⁹ that which is evil ; for there is no man but speaketh more honestly than he can do or think : and it was excellency noted by Thucydides in Cleon,¹⁰ that because he used to hold on¹¹ the bad side in causes of estate,¹² therefore he was ever inveighing against eloquence and good speech ; knowing that no man can speak fair of courses sordid and base. And therefore as Plato said elegantly, *That virtue, if she could be seen, would move great love and affection* ; so seeing that she cannot be showed to the sense by corporal shape, the next degree is to show her to the imagination in lively representation : for to show her to reason only in subtlety of argument was a thing ever derided in Chrysippus¹³ and many of the Stoicks, who thought to thrust virtue upon men by sharp disputationes and conclusions, which have no sympathy with the will of man.

4. Again, if the affections in themselves were pliant and obedient to reason, it were true there should¹⁴ be no great use of persuasions and insinuations to the will more than of naked¹⁵ proposition and proofs ; but in regard of the continual mutinies and seditions of the affections,

*I see the better course and approve of it,
But I follow the worse,*

reason would become captive and servile, if eloquence of persuasions did not practise and win the imagination from the affections' part, and contract a confederacy between the reason and imagination against the affections ; for the affections themselves carry ever an

⁸ *Conversant in*, employed in ; cp. p. 109, n. 31.

⁹ *Colouring*, p. 97, n. 49.

¹⁰ *Cleon*, the leader of the extreme democratic party, in Athens, during the later years of the Peloponnesian war. Thucydides does not make the remark himself, but says that it often was made.

¹¹ *Hold on*, side with.

¹² *Estate*, p. 31, n. 78.

¹³ *Chrysippus*, p. 148, n. 20. The Stoicks deduced the reasonableness of virtue from their fundamental principle of *living according to nature*. Bacon says that it is not sufficient to show that an action is reasonable, unless, at the same time, we implant in men the desire of doing it. See p. 98, n. 52.

¹⁴ *Should*, we should now say *would*.

¹⁵ *Naked*, p. 127, n. 56. The quotation which follows is from Ovid. *Metam.* vii. 20.

appetite to good,¹⁶ as reason doth. The difference is, that the affection beholdeth merely the present ; reason beholdeth the future and sum of time. And therefore the present filling the imagination more, reason is commonly vanquished ; but after that¹⁷ force of eloquence and persuasion hath made things future and remote appear as present, then upon the revolt of the imagination¹⁸ reason prevaleth.

5. We conclude therefore that rhetoric can be no more charged with the colouring¹⁹ of the worse part, than logic with sophistry, or morality²⁰ with vice. For²¹ we know the doctrines of contraries are the same, though the use be opposite. It appeareth also that logic differeth from rhetoric, not only as the fist²² from the palm, the one close the other at large ; but much more in this, that logic handleth reason exact and in truth, and rhetoric handleth it as it is planted in popular opinions and manners. And therefore Aristotle doth wisely place rhetoric as between logic on the one side, and moral or civil²³ knowledge on the other, as participating of both : for the proofs and

¹⁶ *To good*, i.e. as he explains in the *De. Aug.* ‘to apparent good.’ Our desires regard only immediate good, reason looks to the future consequences of actions.

¹⁷ *That*, redundant.

¹⁸ *Upon the revolt of the imagination*, when the imagination deserts the affections or desires, and goes over to the side of reason : i.e. when it represents the dictates of reason as preferable to the dictates of passion.

¹⁹ *Colouring*, p. 284, n. 9.

²⁰ *Morality*, p. 283, n. 2.

²¹ The same science deals with contraries, but with a different object. Logic deals both with good reasoning and bad reasoning, with the object of making us adopt the first, and avoid the second.

²² The close reasoning of logic is compared to the clenched fist, the more diffuse reasoning of the rhetorician to the open hand.

²³ *Moral or civil*, moral and political philosophy. Aristotle regarded Ethics as a branch of political science. In so far as it implies reasoning, rhetoric is akin to logic : in so far as it implies a knowledge of men’s opinions and characters (*manners*, p. 24, n. 28,) it is akin to moral science. Aristotle in his *Rhetoric* says that the success of an orator will depend, firstly, on the personal character which he is able to exhibit or assume ; secondly, on the mood into which he is able to bring his hearers ; and thirdly, on the arguments or apparent arguments which he can adduce. But in order to exhibit the features of a particular character, he must know the moral nature of man in its various phases ; and in order to work upon the feelings, he must know, so to speak, the inner anatomy of the feelings. Hence Aristotle’s *Rhetoric* contains a disquisition on the passions, besides a collection of precepts for acquiring skill in the peculiar kinds of argument that are requisite to success in oratory. See Grant’s *Aristotle*.

demonstrations of logic are toward all men indifferent and the same; but the proofs and persuasions of rhetoric ought to differ according to the auditors:

An Orpheus²⁴ in the woods, an Arion among the dolphins.

Which application, in perfection of idea, ought to extend so far, that if a man should speak of the same thing to several persons, he should speak to them all respectively²⁵ and several ways: though this politic²⁶ part of eloquence in private speech it is easy for the greatest orators to want: whilst, by the observing their well-graced forms of speech, they leese²⁷ the volubility of application: and therefore it shall not be amiss to recommend this to better inquiry, not being curious²⁸ whether we place it here, or in that part which concerneth policy.

6. Now therefore will I descend to the deficiencies, which (as I said) are but attendances²⁹: and first, I do not find the wisdom and diligence of Aristotle well pursued, who began to make a collection of the popular signs and colours³⁰ of good and evil, both simple and comparative,³¹ which are as the sophisms of rhetoric (as I touched³² before). For example:

Fallacy.

That which is praised is good: that which is blamed is bad.

Refutation.

The merchant praises the goods which he wishes to sell.

²⁴ Virgil, *Ecl. viii. 56.* *Orpheus*, p. 77, n. 76. *Arion*, a celebrated player on the harp, said to have been rescued from drowning by a dolphin.

²⁵ *Respectively*, &c., appropriately, and to each man, in a different manner.

²⁶ *Politic*, required in our dealings with our fellow men. It is so called, because it requires 'moral or civil knowledge.' See above, n. 23. *Politic* is the Greek equivalent of *civil*.

²⁷ *Leese*, p. 53, n. 34. *Volubility of application*, facility in adapting their arguments to their hearers.

²⁸ *Not being curious*, not caring.

²⁹ *Attendances*, p. 283, l. 2, sq.

³⁰ *Colours*, used as equivalent to *signs*. Bacon has left a fragment entitled "*Of the Colours of Good and Evil*," i.e. of the signs by which people commonly think that the goodness or badness of a thing may be decided. The student may refer to this for other examples of *colours*, and their refutations.

³¹ *Simple and comparative*, i.e. as he explains in the treatise just referred to, 'In deliberatives the point is, what is good and what is evil: and of good, what is greater, and of evil, what is the less.'

³² *Touched*, p. 135, n. 22. See p. 253, § 8.

It is worthless, it is worthless, says the buyer; but when he is gone, he will boast! The defects in the labour of Aristotle are three: one, that there be but a few of many; another, that their elenches³³ are not annexed; and the third, that he conceived but a part of the use of them: for their use is not only in probation,³⁴ but much more in impression. For many forms are equal in signification which are differing in impression; as the difference is great in the piercing of that which is sharp and that which is flat, though the strength of the percussion be the same. For there is no man but will be a little more raised³⁵ by hearing it said, *Your enemies will be glad of this,*

*My³⁶ death will Ithacus delight,
And Atreus' sons the boon requisite,*

than by hearing it said only, *This is evil for you.*

7. Secondly, I³⁷ do resume also that which I mentioned before, touching provision or preparatory store for the furniture of speech and readiness of invention, which appeareth to be of two sorts; the³⁸ one in resemblance to a shop of pieces unmade up, the other to a shop of things ready made up; both to be applied to that which is frequent and most in request. The former of these I will call *antitheta*, and the latter *formulae*.

8. *Antitheta*³⁹ are theses argued *for and against*; wherein men

³³ *Elenches*, p. 251, n. 10.

³⁴ *Probation*, p. 271, n. 30. *Impression*, i.e. they stir, and produce a strong impression on those to whom they are addressed.

³⁵ *Raised*, moved = excited.

³⁶ The Greeks, despairing of the capture of Troy by the ordinary mode of siege, constructed a huge wooden horse, in which picked soldiers were concealed. The rest of the army then sailed away, leaving one Sinon, who should represent himself as a friendly deserter, and induce the Trojans to drag the horse into the city. The Trojans at first proposed to kill Sinon, but he dissuaded them by saying—"That is just what your enemies would wish you to do; I ran away from the Greeks to escape being put to death." The *Ithacus* is Ulysses, who came from the island of Ithaca. The *Atridae* are the two brothers, Agamemnon and Menelaus, who commanded the Grecian army.

³⁷ See pp. 242-4, §§ 6-8.

³⁸ See p. 243, n. 52, and p. 244, n. 65.

³⁹ See p. 244, n. 66. *Wherein men, &c.*, i.e. others may treat of *antitheta* more at length, and show how they may be applied to deliberative and demonstrative, as well as to judicial oratory. My object is brevity, and I will therefore content myself with saying that I wish competent men (such as are

may be more large and laborious : but (in such as are able to it) to avoid prolixity of entry,⁴⁰ I wish the seeds⁴¹ of the Antitheta. several arguments to be cast up into some brief and acute sentences, not to be cited, but to be as skeins or bottoms⁴² of thread, to be unwinded at large when they come to be used ; supplying authorities and examples by reference.

For the letter of the law.

Interpretation which recedes from the letter is not interpretation, but divination :

When the judge recedes from the letter, he becomes a legislator.

For the intention of the law.

We must gather from all the words taken together the sense in which each is to be interpreted.

9. *Formulae* are but decent and apt passages or conveyances⁴³ of speech, which may serve indifferently for differing subjects ; as of preface, conclusion, digression, transition, excusation,⁴⁴ &c. For as in buildings there is great pleasure and use in the well casting⁴⁵ of the staircases, entries, doors, windows, and the like ; so in speech, the conveyances and passages are of special ornament and effect.

A conclusion in a deliberative.⁴⁶

So may we redeem the faults passed, and prevent the inconveniences future.

XIX. Pp. 289—293. Before dismissing the subject of *tradition*, Bacon makes a few practical suggestions with reference to the editing of books, and the proper method of teaching the young. Correct texts should be published by competent men ; difficult passages should be explained in notes, &c. Schoolmasters should consider what are the most appropriate subjects for boys to learn, and in what order they should be taught, &c. It is all-important that the education which we received in youth should be good. If it be bad its evil effects can never be counteracted ; if it be good, there is no limit to the uses that we may make of it.

able to do it) to compress the matter of arguments *pro et contra* into brief sentences, which may be expanded and applied as occasion arises.

⁴⁰ *Entry*, p. 259, n. 67

⁴¹ *The seeds*, just as a seed develops into a large tree, so will either of the *antitheta* expand, when applied.

⁴² *Bottoms*, balls.

⁴³ *Conveyances*, equivalent to passages.

⁴⁴ *Excusation*, declining a task or office.

⁴⁵ *Casting*, arrangement.

⁴⁶ *A deliberative*, a speech recommending one of two or more courses of action.

Here ends Bacon's account of the arts intellectual. His classification differs from others, because based on a different principle. Instead of arranging together those arts which men have occasion to employ together, he has classified them according to their natural affinities. His classification differs also for another reason, namely, that the number of sciences which he has to classify is increased by the new sciences which he has constituted.

XIX. I. There remain two appendices touching the tradition of knowledge, the one critical,⁴⁷ the other pedantical.⁴⁸ For all knowledge⁴⁹ is either delivered by teachers, or attained by men's proper endeavours: and therefore as the principle part of tradition of knowledge concerneth chiefly writing of books, so the relative part thereof concerneth reading of books; whereunto appertain incidently these considerations. The first is concerning the true correction and edition of authors; wherein nevertheless rash diligence hath done great prejudice. For these critics have often presumed that that which they understand not is false set down⁵⁰: as the priest that, where he found it written of S. Paul *He was let down by a basket* (*per sportam*), mended his book, and made it *He was let down by the gate* (*per portam*), because *sporta* was an hard word, and out of his reading: and surely their errors, though they be not so palpable and ridiculous, yet are of the same kind. And therefore, as it hath been wisely noted, the most corrected copies are commonly the least correct.

The second is concerning the exposition and explication of authors, which resteth in⁵¹ annotations and commentaries: wherein it is over usual to blanch⁵² the obscure places and discourse upon the plain.

The third is concerning the times,⁵³ which in many cases give great light to true interpretations.

The fourth is concerning some brief censure⁵⁴ and judgement of the authors; that men thereby may make some election unto themselves what books to read.

⁴⁷ Critical, i.e. concerned with the reviewing, correcting, and explaining of books.

⁴⁸ Pedantical, concerned with teaching. Cp. p. 18, n. 85. It refers specially to the teaching of the young, a subject which Bacon has not yet dealt with.

⁴⁹ Knowledge is either cumulative or original; p. 151, l. 5. Proper, own.

⁵⁰ False set down, a mistake in the text. Cp. p. 66, n. 9.

⁵¹ Resteth in, consists in.

⁵² To blanch, to shrink from: to avoid.

⁵³ The times, viz., in which the author of the book lived.

⁵⁴ Censure, p. 7, n. 25.

And the fifth is concerning the syntax^{ss} and disposition of studies ; that men may know in what order or pursuit^{ss} to read.

2. For pedanticalst knowledge, it containeth that difference of tradition which is proper for youth ; whereunto appertain divers considerations of great fruit.

As^{ss} first, the timing and seasoning of knowledges ; as with what to initiate them, and from what for a time to refrain them.

Secondly, the consideration where to begin with the easiest, and so proceed to the more difficult ; and^{ss} in what courses to press the more difficult, and then to turn them to the more easy ; for it is one method to practise swimming with bladders, and another to practise dancing with heavy shoes.

A^{so} third is the application of learning according unto the propriety of the wits ; for there is no defect in the faculties intellectual, but seemeth to have a proper cure contained in some studies : as, for example, if a child be bird-witted, that is, hath not the faculty of attention, the mathematics giveth a remedy thereunto ; for in them, if the wit be caught away but a moment, one is new to begin.^{s1} And^{ss} as sciences have a propensity towards faculties for cure and

^{ss} *Syntax*, arrangement. This is the literal meaning of the word.

^{ss} *Pursuit*, sequence ; cp. p. 216, l. 14.

st *Pedantical*, see above, n. 48. In the *De Aug.* Bacon says that all boys should be trained in colleges, or public schools. For, in the company of those of their own age, they are stimulated to work by a spirit of emulation : while the grave and sober aspect of their teachers trains their minds to habits of modesty. Every system of education is bad which makes pupils precocious, securing the appearance without the reality of knowledge. Boys should be encouraged, besides doing their school work, to give extra time to the study of any subject for which they have a special liking.

^{ss} Cp. p. 113, l. 23, sq. For *refrain*, see p. 78, n. 85.

^{ss} In some cases it is well to begin with a difficulty, because the solution of the difficulty will make all the rest clear. The metaphor which follows is used again in the 38th *Essay*.

^{so} Cp. p. 185, l. 4, sq. *Propriety*, peculiarity. *The wits*, viz., the minds of the pupils.

^{s1} *One is new to begin*, if our attention wanders for a moment, we have to begin the proof again.

^{s2} Just as certain studies will cure certain defects, so some minds have a special bent for certain studies, and in those studies they will make the quickest progress. In the *De Aug.* Bacon says that parents very rightly expect to learn from the masters the special aptitudes of their children, that they may be guided in choosing a profession for them.

help, so faculties or powers have a sympathy towards sciences for excellency or speedy profiting : and therefore it is an inquiry of great wisdom, what kinds of wits and natures are most apt and proper for what sciences.

Fourthly, the ordering of exercises⁶³ is matter of great consequence to hurt or help : for, as is well observed by Cicero, men in exercising their faculties, if they be not well advised, do exercise their faults and get ill habits as well as good ; so as there is a great judgement to be had⁶⁴ in the continuance and intermission of exercises. It were too long to particularise a number of other considerations of this nature, things but of mean appearance, but of singular efficacy. For as the wronging⁶⁵ or cherishing of seeds or young plants is that that is most important to their thriving, and as it was noted⁶⁶ that the first six kings being in truth as tutors⁶⁷ of the state of Rome in the infancy thereof was the principal cause of the immense greatness of that state which followed, so the culture and manurance⁶⁸ of minds in youth hath such a forcible (though unseen) operation, as hardly any length of time or contention⁶⁹ of labour can countervail it afterwards. And it is not amiss to observe also how small and mean faculties gotten by education, yet when they fall into great men or great matters, do work great and important effects : whereof we see a notable example in Tacitus⁷⁰ of two stage players, Percennius and Vibulenus, who by their faculty of playing put the

⁶³ *Exercises*, i.e. the tasks required of a pupil. The word includes every thing that forms a part of the school curriculum.

⁶⁴ *To be had*, to be used ; cp. *Essay* 38. ‘Let not a man force a habit upon himself with a perpetual continuance, but with some intermission. For both the pause reinforceth the new onset ; and if a man that is not perfect be ever in practice, he shall as well practise his errors as his abilities, and induce one habit of both. And there is no means to help this but by seasonable intermission.’

⁶⁵ *Wronging*, bad treatment of.

⁶⁶ *As it was noted*, by Machiavelli. *Discorsi.*, i. 19.

⁶⁷ *Tutors*, obs. that the word properly signifies *guardians*.

⁶⁸ *Manurance*, equivalent to culture. The word is suggested by the mention of trees. The verb *to manure* is used in the sense of *to cultivate* on p. 117, l. 2.

⁶⁹ *Contention*, p. 148, n. 21.

⁷⁰ See Tacitus’ *Annals*, Bk. i., ch. 16—22. *Pannonia*, a Roman province to the south of the Danube.

Pannonian armies into an extreme tumult and combustion.⁷¹ For there arising a mutiny amongst them upon the death of Augustus Cæsar, Blæsus the lieutenant⁷² had committed some of the mutineers, which were suddenly rescued; whereupon Vibulenus got to be heard speak, which he did in this manner: *These poor innocent wretches appointed to cruel death, you have restored to behold the light: but who shall restore my brother to me, or life unto my brother, that was sent hither in message⁷³ from the legions of Germany, to treat of the common cause?* and he hath murdered him this last night by some of his fencers⁷⁴ and ruffians, that he hath about him for his executioners upon soldiers.⁷⁵ Answer, Blæsus, what is done with his body? *The mortalest enemies do not deny burial.* When I have performed my last duties to the corpse with kisses, with tears, command me to be slain besides him; so that these my fellows, for our good meaning and our true hearts to the legions, may have leave to bury us. With which speech he put the army into an infinite fury and uproar: whereas truth was he had no brother, neither was⁷⁶ there any such matter; but he played it merely as if he had been upon the stage.

3. But to return: we are now come to a period⁷⁷ of rational knowledges; wherin if I have made the divisions other than those that are received, yet would I not be thought to disallow⁷⁸ all those

⁷¹ *Combustion*, excitement.

⁷² *The lieutenant*, The governor of the province. The word means 'one who holds the place of another.' The governor is in the place of, or represents, the emperor.

⁷³ *In message*, p. 93, n. 19.

⁷⁴ *Fencers*, swordsmen.

⁷⁵ i.e. to murder the soldiers.

⁷⁶ *Neither was*, &c., nor had any such thing as the murder of his brother happened. In the *De Aug.* Bacon recommends that *acting* should be taught in schools. As a *profession*, he says, it is in bad repute, but it is an invaluable part of *discipline*. It strengthens the memory: it regulates the tone and effect of voice and pronunciation: it teaches graceful expression and gesture: it inspires confidence: and lastly, it accustoms boys to performances in public. Ellis says that these matters were better attended to, than they are now, in Bacon's time, when masques, acted by young gentlemen of the universities and Inns of Court, were the favourite entertainment of princes. See *Essay 37*. Bacon himself was very fond of arranging and taking part in masques. The arts of speaking, reciting, or even reading aloud, are now, very unwisely, neglected.

⁷⁷ *Period*, p. 41, n. 68.

⁷⁸ *Disallow*, disapprove of; cp. p. 27, n. 47.

divisions which I do not use. For there is a double necessity imposed upon me of altering the divisions. The one, because it differeth in end and purpose, to sort⁷⁹ together those things which are next in nature, and those things which are next in use.⁸⁰ For if a secretary of estate⁸¹ should sort his papers, it is like⁸² in his study or general cabinet he would sort together things of a nature, as⁸³ treaties, instructions, &c. But in his boxes or particular cabinet he would sort together those that he were like to use together, though of several natures. So in this general cabinet of knowledge it was necessary for me to follow the divisions of the nature of things; whereas if myself had been to⁸⁴ handle any particular knowledge, I would have respected the divisions fittest for use. The other, because the bringing in of the deficiencies did by consequence alter the partitions of the rest. For let the knowledge extant (for demonstration sake) be fifteen. Let the knowledge with the deficiencies be twenty; the parts of fifteen are not the parts of twenty; for the parts of fifteen are three and five; the parts of twenty are two, four, five, and ten. So as these things are without⁸⁵ contradiction, and could not otherwise be.

XX. Pp. 294—305. Bacon now proceeds to moral philosophy. The chief fault that he has to find with it is, that it is unpractical. Philosophers have given eloquent and attractive descriptions of virtue, but have not taught men how to become virtuous. They seem to have aimed at acquiring a reputation for eloquence and subtlety, and to have despised the simple and common details of conduct, in which, nevertheless, it is the business of sound ethics to give guidance. But men need not have regarded the discipline of the character, or, as Bacon calls it, *the Georgics of the mind*, as an inglorious subject. Virgil's Georgics are as well known, and as famous as his *Aeneid*. The first and most important division of ethical science is into the knowledge of what virtue is, and the knowledge of the way to become virtuous. With the treatment of the first of these two subjects Bacon has little fault to find. Philosophers have provided us with excellent definitions of virtue, and have attempted to classify the virtues in the order of their superiority. At the same time we must dismiss from our minds their idea of a superhuman degree of

⁷⁹ To sort, to arrange.

⁸⁰ Next in use, which we have occasion to use together.

⁸¹ Estate, state.

⁸² Like, likely.

⁸³ i.e. treaties by themselves, instructions by themselves, &c.

⁸⁴ Had been to, if I had had occasion to treat of any particular science.

⁸⁵ Without, beyond.

felicity to be attained by a philosopher; for Christianity has taught us that real happiness is to be looked for only in heaven. At the same time, Bacon cannot help regretting that philosophers have been content to start with the popular notions of virtue. He himself proposes to go more to the root of the matter, and to examine the fundamental conception of good. Every thing in nature he says, (and he illustrates his remark by certain fanciful analogies), desires two kinds of good—its own good, and the good of the body to which it belongs. This is a law of nature, ordained by God. The desire of the general good is higher than the desire of the good of self, ‘because it tends to the preservation of a more general form.’ Christianity teaches us this lesson, and its teaching on this point is a proof of its divine origin, for it is in accordance with the will of God as exemplified in nature. From this we may infer that those philosophers were wrong, who preferred a contemplative to an active life. Man is intended to be a worker, not a looker on, in the world. We may infer from it also that those philosophers are mistaken, who consider actions as virtuous in proportion as they conduce, not to the good of society, but to the peace of mind of the agent. We may infer from it, further, that those philosophers were wrong, who placed contentment above virtuous effort. We may infer from it that those moral valetudinarians were wrong, who sought peace of mind by flying from difficulties, rather than by overcoming them, and who sought tranquillity in retirement from the world, because they were too thin-skinned to endure the annoyances and indignities, which are inseparable from public life.

The student will notice once more the exclusive stress which Bacon lays on the practical application of knowledge.

XX. I. WE^{ss} proceed now to that knowledge which considereth of the appetite and will of man: whereof Salomon

^{ss} See p. 227, § 12. With Bacon's remarks the student may compare the saying of Descartes, “Philosophers exalt virtue, but do not teach us how to know it.” At the same time, he must bear in mind that a complete and scientific theory of ethics is desirable and necessary, for the sake of practice. Practical rules are impossible, until the notions of the virtues have been accurately determined and defined. Practical advice and instruction belong rather to the moral rhetorician, than to the philosopher. They naturally find a place, for instance, in Butler's Sermons. At the same time, practical instruction is conveyed incidentally in the theoretical discussions of the moralist. The definition of a virtue is based on what men do, and can do: there is little practical difficulty in inferring the way to become good, however difficult the way may be to follow. There is considerable force in Bacon's remarks, as applied to the Greek moralists: but this is because they did not accurately define the virtues. Aristotle, for instance, says that every virtue is a mean between two extremes, but he did not fix the mean point. The definition of liberality as a mean between extravagance and stinginess is too vague for practice: but, then, it is too vague for theory also. It is worth noticing that Aristotle himself says that the object of his Ethical treatise is not *knowledge* but *practice*.

saith, *My son, before all things keep thine heart, for out of it proceed the actions of life.* In the handling of this science, those which have written seem to me to have done as if a man, that professed to teach to write, did only exhibit fair copies of alphabets and letters joined, without giving any precepts or directions for the carriage of the hand and framing of the letters. So have they made good and fair exemplars and copies, carrying the draughts and portraitures of good virtue, duty, felicity; propounding them well described as the true objects and scopes of man's will and desires. But how to attain these excellent marks, and how to frame and subdue the will of man to become true and conformable to these pursuits, they pass it over altogether, or slightly and unprofitably. For⁸⁷ it is not the disputing, that moral virtues are in the mind of man by habit and not by nature; or the distinguishing, that generous spirits are won⁸⁸ by doctrines and persuasions, and the vulgar sort by reward and punishment; and the like scattered glances⁸⁹ and touches, that can excuse the absence of this part.

2. The⁹⁰ reason of this omission I suppose to be that hidden rock whereupon both this and many other barks of knowledge have been cast away; which is, that men have despised to be conversant in⁹¹ ordinary and common matters, the judicious direction whereof nevertheless is the wisest doctrine (for life consisteth not in novelties nor subtilties), but contrariwise they have compounded sciences chiefly of a certain resplendent or lustrous mass of matter, chosen to give glory either to the subtlety of disputation, or to the eloquence of discourses. But Seneca giveth an excellent check to eloquence, *Eloquence does harm to those who love it more than matter.* Doctrine should be such as should make men in love with the lesson, and not with the teacher; being directed to the auditor's benefit, and not to the author's commendation. And therefore those⁹² are of the right kind which may be concluded as Demosthenes concludes his counsel

⁸⁷ Bacon is referring to Aristotle's definition of a virtue, as a *habit of doing what is right*. The habit is to be attained by persistence in good actions. A single or isolated good action is not virtuous, because it does not proceed from a settled habit. *Ethics*, Bk. 2, ch. 9.

⁸⁸ *Generous spirits are won*, noble minds are influenced.

⁸⁹ *Glances*, p. 83, n. 30. *Touches*, p. 135, n. 22.

⁹⁰ Cp. p. 123, § 5.

⁹¹ *Conversant in*, p. 284, n. 8.

⁹² *Those*, viz., doctrines. The reference is to the second Olynthiac Oration, ch. 8.

If you do this, you will not only commend the speaker to-day, but you will soon have reason to congratulate yourselves by reason of the improved state of your affairs.

3. Neither needed men of so excellent parts to have despaired of a fortune, which the poet Virgil promised himself, and indeed obtained, who got as much glory of⁹³ eloquence, wit, and learning in⁹⁴ the expressing of the observations of husbandry, as of the heroical acts of Æneas :

*Nor can I doubt what oil I must bestow
To raise my subject from a ground so low :
And the mean matter which my theme affords
To embellish with magnificence of words.*

And surely, if the purpose be in good earnest, not to write at leisure that which men may read at leisure, but really to instruct⁹⁵ and suborn action and active life, these Georgics of the mind, concerning the husbandry and tillage thereof, are no less worthy than the heroical⁹⁶ descriptions of virtue, duty, and felicity. Wherfore the main and primitive division of moral knowledge seemeth to be into the exemplar or platform⁹⁷ of good, and the regiment or culture of the mind : the one describing the nature of good, the other prescribing rules how to subdue, apply, and accommodate the will of man thereunto.

4. The doctrine touching the platform or nature of good considereth it either simple or compared⁹⁸; either the kinds of good

⁹³ Glory of, reputation for.

⁹⁴ He refers to Virgil's Georgics, and to his Æneid. The word *Georgics* means properly *the tilling of the ground*. Bacon applies it metaphorically to the cultivation of the mind. The quotation which follows is from the 3rd *Georgic*, v. 289.

⁹⁵ Instruct and suborn, to furnish and equip. These are meanings which the words bear in Latin. Bacon means, 'to furnish men with directions for succeeding in practice.'

⁹⁶ Heroical, splendid. The word is suggested by the reference to the Æneid, which is an heroic poem.

⁹⁷ Platform, pattern.

⁹⁸ Either simple or compared, i.e. what things are good in themselves, and what things are more good than others. Bacon uses the Greek word *good*, instead of the modern word *virtue*; see p. 206, n. 23. Greek moralists did not ask, what is right? but what is good, i.e. desirable? They arranged desirable things, according to the degree of their desirability; and that which was most desirable, or, as they said, which was the highest good, was that to which all a

or the degrees of good ; in the latter whereof those infinite disputationes which were touching the supreme degree thereof, which they term felicity, beatitude, or the highest good, the doctrines concerning which were as the heathen divinity,⁹⁹ are by the Christian faith discharged.¹ And as Aristotle saith, *That² young men may be happy, but not otherwise but by hope* ; so we³ must all acknowledge our minority and embrace the felicity which is by hope of the future world.

5. Freed therefore and delivered from this doctrine of the philosopher's heaven,⁴ whereby they feigned an higher elevation of man's

man's actions should be directed. The highest good was that which was always desired in and for itself, and never as a means to any thing else. The disputes among Greek moralists turned upon the question : What is this highest good ? Some said it was pleasure, some virtue, some freedom from disturbance, &c. All subordinate goods were arranged according to their degree of goodness, i.e. according as they conduced to the highest good, which was the end and regulator of conduct. The modern form of the question what is good ? is, what is the criterion of right and wrong ? The modern form of the question, what are the degrees of good ? is, on what principle are we to decide between conflicting obligations ?

⁹⁹ *Were as the heathen divinity*, were the substitute for theology, among the heathen. The speculations of the Greeks were scarcely affected by any expectations they may have had of a future life. Philosophers differed as to what man's highest good was, but they all agreed that it was something which was to be attained in this life. The student will notice that Bacon uses *the highest good* and *felicity* as convertible terms. In this he is right. Those philosophers who, like Aristotle and Plato, did not regard happiness as the highest good, still thought that pleasure was an inseparable accompaniment of virtue, which was the highest good.

¹ *Discharged*, put an end to ; cp. 254, n. 37.

² Ethics Bk. i. ch. 10. A young man can only be happy by anticipation. Happiness can be enjoyed only by the full-grown man ; for happiness consists in being virtuous ; and it is impossible to be virtuous until all the faculties are fully developed.

³ We must be content to regard ourselves as children, and, therefore, as living in anticipation of happiness. Our happiness, however, is to be attained, not, as Aristotle thought, when we are full grown men, but in heaven. *Minority* is used in its technical sense of being *not of age*.

⁴ *The philosopher's heaven*, i.e. the supreme happiness which only a philosopher can attain. See I. 2, seqq. Both Aristotle and Plato thought that the highest degree of happiness attended philosophical contemplation. This was, in their view, a virtue : for by a virtue they meant simply the perfection of any one of our faculties. The attainment of philosophical truth, therefore, was *the virtue* of the intellectual faculty.

nature than was⁵ (for we see in what height of style⁶ Seneca writeth, *It is true greatness to have in one the frailty of a man and the security of a God*), we may with more sobriety⁷ and truth receive the rest of their inquiries and labours. Wherein for the nature of good positive⁸ or simple, they have set it down excellently in describing the forms⁹ of virtue and duty, with their situations and postures ; in distributing them into their kinds, parts, provinces, actions, and administrations, and the like : nay further, they have commended them to man's nature and spirit with great quickness¹⁰ of argument and beauty of persuasions ; yea, and fortified and entrenched them (as much as discourse can do) against corrupt and popular opinions. Again, for the degrees¹¹ and comparative nature of good, they have also excellently handled it in their triplicity of good,¹² in the comparisons between a contemplative¹³ and an active life, in the distinction between virtue with reluctance¹⁴ and virtue secured, in their encounters between honesty and profit, in their balancing of virtue with virtue, and the like ; so as this part deserveth to be reported for excellently laboured.

6. Notwithstanding, if before they had comen to the popular and received notions of virtue and vice, pleasure and pain, and the rest, they had stayed a little longer upon the inquiry concerning the roots of good and evil, and the strings¹⁵ of those roots, they had given, in

⁵ Than was, than it was capable of.

⁶ Height of style, grandiloquent language ; cp. Bacon's 5th Essay.

⁷ Sobriety, p. 13, n. 56.

⁸ Good positive, p. 296, n. 98.

⁹ Forms, shapes. They have described virtue, as it were, in different attitudes, i. e. from different points of view : considering the divisions of virtue, the spheres of conduct with which the different virtues are concerned (*their provinces*), what kind of actions they require of us (*their actions*), and the manner of carrying them out in practice (*their administrations*).

¹⁰ Quickness, p. 20, n. 99.

¹¹ For the degrees, &c., see p. 296, n. 98.

, ¹² Triplicity of good, viz., the good of mind, body, and estate. See Aristotle's *Ethics*, Bk. i., ch. 8.

¹³ A contemplative and an active life ; cp. p. 301, § 8.

¹⁴ Virtue with reluctance, &c., virtue which requires an effort, (p. 67, n. 10,) and virtue which, by the force of habit, is easy and assured.

¹⁵ The strings, the fibres. By the root of good, he means the fundamental or radical distinctions of good, as for instance, the good of self, and the good of the whole. (See p. 299, § 7.) By the fibres of this root he means that these distinctions are not confined to one particular kind of good, but extend or

my opinion, a great light to that which followed ; and specially if they had consulted with nature, they had made their doctrines less prolix and more profound : which being by them in part omitted and in part handled with much confusion, we will endeavour to resume and open in a more clear manner.

7. There is formed in every thing a double nature of good : the one, as every thing is a total or substantive¹⁶ in itself ; the other, as it is a part or member of a greater body : whereof the latter is in degree the greater and the worthier, because it tendeth to the conservation of a more general form.¹⁷ Therefore we see the iron in particular sympathy moveth to the loadstone ; but yet if it exceed a certain quantity, it forsaketh the affection to the loadstone, and like a good patriot¹⁸ moveth to the earth, which is the region and country of massy

as it were, ramify throughout all nature. He traces them, for instance, in the action of iron, and massy bodies.

¹⁶ *Substantive*, having a distinct existence. With this passage cp. Hooker's *Ecclesiastical Polity*, i., 3, 5. "As natural agents have their law, which law directeth them in the means whereby they tend to their own perfection : so likewise another law there is, which toucheth them as they are sociable parts united into one body ; a law which bindeth them each to serve unto another's good, and all to prefer the good of the whole before whatsoever their own particular; as we plainly see they do, when things natural in that regard forget their ordinary natural wont ; that which is heavy mounting sometime upward of its own accord, and forsaking the centre of the earth which to itself is most natural, even as if it did hear itself commanded to let go the good it privately wisheth, and to relieve the present distress of nature in common."

¹⁷ *More general form*, the essence of a larger body. He uses the word *form*, in the sense of essence, i.e. that which makes a thing to be what it is, to show that the good done must be *real*, and not merely external or apparent. Thus, good is done to the *form* of society, when society is made stronger, safer, more moral, more enlightened, &c., i.e. when it is improved in those points, which are the *essence* of or constitute a society. The *form* of society is not improved by such external and apparent good as wealth, luxury, &c. Similarly, good is done to the *form* of an individual, when his moral tone is improved : mere advantages of wealth and position are not 'formal and essential good.' xxi. 2. The argument is, that the good of the whole is greater than the good of the part. By a law of nature, all things, which exist, sacrifice their own likings, when the good of the whole, to which they belong, requires such sacrifice. The Christian law requires man to do the same, and may, therefore, be supposed to be divine, since, in this respect, it agrees with the law of nature, which is certainly ordained by God.

¹⁸ *Like a good patriot*, because it goes to the place where bodies of its own kind are.

bodies : so may we go forward, and see that water and massy bodies move to the centre of the earth ; but rather than to¹⁹ suffer a divulsion in the continuance²⁰ of nature, they will move upwards from the centre of the earth, forsaking their duty to the earth in regard of²¹ their duty to the world. This double nature of good, and the comparative thereof,²² is much more engraven upon man, if he degenerate not : unto whom the conservation of duty to the public ought to be much more precious than the conservation of life and being : according to that memorable speech of Pompeius Magnus, when being in commission²³ of purveyance for a famine, at Rome, and being dissuaded with great vehemency and instance²⁴ by his friends about him, that he should not hazard himself to sea in an extremity of weather, he said only to them, *If it is necessary that I should go, not that I should live.* But it may be truly affirmed that there was never any philosophy, religion, or other discipline, which did so plainly and highly exalt the good which is communicative,²⁵ and depress²⁶ the good which is private and particular, as the Holy Faith²⁷ ; well declaring that²⁸ it was the same God that gave the Christian law to men, who gave those laws of nature to inanimate creatures that we spake of before ; for we read that the elected saints of God have wished themselves anathematized²⁹ and razed out of the book of life, in an ecstasy of charity³⁰ and infinite feeling of communion.

¹⁹ To, would now be omitted.

²⁰ The continuance, the continuity. Cp. discontinuation, p. 213, n. 73.

²¹ In regard of, for the sake of.

²² The comparative thereof, i.e. the relative merit of the two kinds of good.

²³ Being in commission, &c., being employed to supply the city with food during a famine.

²⁴ Instance, urgency.

²⁵ Which is communicative, i.e. of the community.

²⁶ Depress, disparage in comparison with the other.

²⁷ The Holy Faith, cp. the faith, p. 203, n. 13.

²⁸ Well declaring that, i.e. from which it is evident that.

²⁹ Anathematized, cursed by God. By the *Book of Life* is meant the book in which God is supposed to record the names of those who, for their virtuous lives, are to be rewarded hereafter. After *life*, he adds in the *De Aug.*, ‘if, by so doing, they could secure salvation for their brethren.’ Ellis says that this conditional sacrifice of salvation was often touched upon by theologians. In *Exodus*, ch. xxxii. 32, Moses says to God, “Yet now, if thou wilt forgive their sin, well; and, if not, blot me, I pray thee, out of thy book, which thou hast written.” Paul, too, in his letter to the Romans, ch. xi. 3, says, “I could wish that myself were accursed from Christ for my brethren.”

³⁰ Charity, p. 9, n. 42. Communion, sympathy.

8. This being set down and strongly planted,⁸¹ doth judge⁸² and determine most of the controversies wherein moral philosophy is conversant.⁸³ For first, it decideth the question touching the preferment of the contemplative or active life, and decideth it against Aristotle. For all the reasons⁸⁴ which he bringeth for the contemplative are private, and respecting the pleasure and dignity of a man's self (in which respects no question⁸⁵ the contemplative life hath the preeminence), not much unlike⁸⁶ to that comparison, which Pythagoras⁸⁷ made for the gracing and magnifying of philosophy and contemplation : who being asked what he was, answered, *That if Hiero were ever at the Olympian games,⁸⁸ he knew the manner, that some came to try their fortune for the prizes, and some came as merchants to utter⁸⁹ their commodities, and some came to make good cheer and meet their friends, and some came to look on ; and that he was one of them that came to look on.* But men must know, that in this theatre⁹⁰ of man's life it is reserved only for God and angels to be lookers on. Neither could⁹¹ the like question ever have been received in the church, notwithstanding their *Precious in the sight of the Lord is the death of his saints*, by which place⁹² they would exalt their civil death⁹³ and regular professions,⁹⁴ but upon this defence,

⁸¹ Set down and strongly planted, being established as a certain truth.

⁸² Judge, decide. Determine, used in its literal sense of put an end to.

⁸³ Conversant, p. 295, n. 91.

⁸⁴ All the reasons, viz., that it is the highest kind of life, that it can be enjoyed uninterruptedly for the greatest length of time, that it is the most pleasant, that it is the most self-sufficient, that it alone is loved for its own sake, and that it implies leisure. *Ethics*, Bk. 10, ch. 7.

⁸⁵ No question, used adverbially, as we now use no doubt.

⁸⁶ Not much unlike, i.e. the relation of the active to the contemplative life is not unfitly illustrated by, &c.

⁸⁷ Pythagoras, p. 195, n. 65, and p. 202, n. 10. The remark was addressed not to Hiero, but to Leo, the tyrant of Phliuns. E.

⁸⁸ The Olympian games, p. 218, n. 19. The manner, i.e. how.

⁸⁹ To utter, to dispose of.

⁹⁰ Theatre, the world is the stage, on which man plays his part. Cp. Shakespeare, *As you like it*, 2, vii. 139.

⁹¹ Neither could, &c. i.e. nor could the church have admitted that this point was at all doubtful.

⁹² Place, passage. The quotation is from the 116th Psalm.

⁹³ Their civil death, by retiring from the world they were dead to society. For civil, see p. III, n. 40.

⁹⁴ Their regular professions, their mode of life, which was regulated by strict rules. Cp. p. 20, n. 97. But, except.

that the monastical life is not simple⁴⁵ contemplative, but performeth the duty either of incessant prayers and supplications, which hath been truly esteemed as an office in the church, or else of writing or taking instructions for writing concerning the law of God, as Moses⁴⁶ did when he abode so long in the mount. And so we see Henoch the seventh from Adam, who was the first contemplative⁴⁷ and walked with God, yet did also endow the church with prophecy, which Saint Jude citeth. But for contemplation which should be finished in itself,⁴⁸ without casting beams⁴⁹ upon society, assuredly divinity knoweth it not.⁵⁰

9. It⁵¹ decideth also the controversies between Zeno⁵² and Socrates, and their schools and successions, on the one side, who placed felicity in virtue simply or attended,⁵³ the actions and exercises whereof do chiefly embrace and concern society; and on the other side, the Cyrenaics⁵⁴ and Epicureans, who placed it in

⁴⁵ *Simple*, merely. The only possible defence of monasticism, says Bacon, is that the monks, in their retirement, either pray for their fellow-men, or write books on theology for their information.

⁴⁶ It is said that God, on Mount Sinai, communicated instructions to Moses which he was to convey to the Israelites.—*Exodus*, ch. 24.

⁴⁷ *The first contemplative*, In the *De Aug.* it is 'who appears to have been the first to lead a contemplative life, for the Scriptures tell us that *he walked with God*.' The expression is ambiguous. At any rate, says Bacon, his life was not 'simple contemplative,' for he enriched the church with a book of prophecy. The apocryphal book of Enoch was brought from Abyssinia by Bruce in 1773, and translated into English by Dr. Lawrence in 1838. E.

⁴⁸ *Be finished in itself*, have no ulterior object.

⁴⁹ *Beams*, he adds in the *De Aug.* 'either of warmth or of light.' A man has no business to retire from the world, except for the purpose of increasing men's comforts by inventions, or their knowledge by writing. He expressed the same view on p. 9.

⁵⁰ *Divinity knoweth it not*, it is nowhere sanctioned by theology.

⁵¹ *It*, viz., the superiority of the good of the whole to the good of a part.

⁵² *Zeno*, born in Cyprus about B. C. 340, was the founder of the Stoic school of philosophy. The opposition is between Zeno and Socrates on the one hand, and all the schools which follow, on the other.

⁵³ *Attended*, i.e. adorned with other gifts and graces.

⁵⁴ *The Cyrenaics*, p. 35, n. 23. *Epicureans*, p. 214, n. 82. The chief point of difference between the two schools was, that the first regarded immediate bodily pleasure as the highest good, the second aimed at happiness extending throughout the whole of life. Epicurus regarded virtue as having no value in itself, but only in so far as it gives happiness. But he regarded virtue and happiness as inseparable.

pleasure, and made virtue (as it is used in some comedies of errors, wherein the mistress and the maid change habits⁵⁵) to be but as a servant, without which pleasure cannot be served and attended ; and the reformed school⁵⁶ of the Epicureans, which placed it in serenity of mind and freedom from perturbation, as⁵⁷ if they would have deposed Jupiter again, and restored Saturn and the first age, when there was no summer nor winter, spring nor autumn, but all after one air and season ; and Herillus,⁵⁸ which placed felicity in extinguishment of the disputes of the mind, making no fixed nature of good and evil, esteeming things⁵⁹ according to the clearness of the desires, or the reluctance ; which opinion was revived in the heresy of the Anabaptists,⁶⁰ measuring things according to the motions of the spirit, and the constancy or wavering of belief : all which are manifest to tend to private repose and contentment, and not to point of society.

10. It⁶¹ censureth also the philosophy of Epictetus,⁶² which presupposeth that felicity must be placed in those things which are in our power, lest we be liable to fortune and disturbance : as if it were not a thing much more happy to fail in good and virtuous ends

⁵⁵ *Habits, dresses.*

⁵⁶ *The reformed school, &c.*, The doctrine that an imperturbable sense of tranquillity, springing from the consciousness of virtue, was the chief element of the wise man's happiness, was taught by Epicurus himself.

⁵⁷ He alludes to the Greek and Roman mythology, according to which Jupiter deposed his father Saturn, and usurped his throne. With the deposition of Saturn the golden age came to an end.

⁵⁸ *Herillus of Carthage*, a pupil of Zeno. He represented science as the only end of life. *Whitch, who.*

⁵⁹ *Esteeming things, &c.*, in thinking those actions good, to which we proceed with composure of mind, and those evil, to which we proceed unwillingly. *Reluctation*, p. 67, n. 10.

⁶⁰ *Anabaptists*, A sect of Christians who came into prominence in the fifteenth century. Bacon refers to the stress which they laid on the independence of the individual judgment, and the supreme importance which they attached to the subjective element, or personal faith, in religion.

⁶¹ *It, see above, n. 51.*

⁶² *Epictetus*, p. 96, n. 43. Bacon misrepresents the Stoics. What they did say was that the end of man's life was virtue, or life according to nature. (See p. 284, n. 13.) Life according to nature is possible to man : and all external ends, such as pleasure, which are not attainable by him, are indifferent to the supreme end and object of his being. The necessity of moral effort and energy is the central point of the Stoic system.

for the public, than to obtain all that we can wish to ourselves in our proper⁶³ fortune ; as Consalvo⁶⁴ said to his soldiers, showing them Naples, and protesting he had rather die one foot forwards, than to⁶⁵ have his life secured for long by one foot of retreat. Whereunto the wisdom of that heavenly leader hath signed,⁶⁶ who hath affirmed that *a good conscience is a continual feast* ; showing plainly that the conscience of good intentions, howsoever succeeding, is a more continual joy to nature, than all the provision which can be made for security and repose.

11. It⁶⁷ censureth likewise that abuse of philosophy, which grew general about the time of Epictetus, in converting it into an occupation or profession ; as if the purpose had been, not to resist and extinguish perturbations, but to fly and avoid the causes of them, and to shape a particular kind and course of life to that end ; introducing such an health of mind, as was that health of body of which Aristotle speaketh of Herodicus,⁶⁸ who did nothing all his life long but intend⁶⁹ his health : whereas if men refer themselves to duties of society, as that health of body is best, which is ablest to endure all alterations and extremities ; so likewise that health of mind is most proper,⁷⁰ which can go through the greatest temptations and perturbations. So as Diogenes⁷¹ opinion is to be accepted, who commended not them which abstained, but them which sustained,

⁶³ Proper, own.

⁶⁴ Fernandez Consalvo of Cordova, commonly called the Great Captain, and certainly one of the most successful soldiers of the age in which he lived, was employed by the king of Spain in his Italian wars. He died at (Granada) in (December, 1515). E.

⁶⁵ To, p. 300, n. 19.

⁶⁶ Hath signed, hath set his seal, i.e. hath confirmed it. The quotation is from *Proverbs*, ch. xv. 15.

⁶⁷ It, see above, n. 51.

⁶⁸ Herodicus, a physician, and the teacher of Hippocrates. Aristotle's *Rhetoric*, i., 5, 10. Plato in his *Republic* censures him for having introduced a system of treatment which prolonged the lives of feeble men when they had ceased to be of any use.

⁶⁹ Intend, p. 208, n. 41.

⁷⁰ That health of mind is most proper, i.e. that mind is truly to be considered in a healthy state.

⁷¹ Diogenes, p. 34, n. 16.

and could refrain their mind *on the brink*,⁷³ and could give unto the mind (as is used in horsemanship) the shortest stop or turn.⁷⁴

12. Lastly, it⁷⁵ censureth the tenderness and want of application in some of the most ancient and reverend philosophers and philosophical men, that did retire too easily from civil⁷⁶ business, for avoiding of indignities and perturbations: whereas the resolution of men truly moral ought to be such as the same Consalvo said the honour of a soldier should be, *of a coarser web*, and not so fine as that every thing should catch in it⁷⁷ and endanger it.

XXI. Pp. 306—320. Bacon now proceeds to consider *the good of the individual*, which he begins by dividing into good *active* and *passive*—*action* and *self-preservation*. A distinct desire for these two kinds of good may be traced in all things that exist: and a study of nature and of human opinion shows that *the active pursuit of one's own good, or the desire to leave a memorial of ourselves in the world*, is nobler than mere *self-preservation*. This active pursuit of one's own good must not be confounded with the pursuit of the good of society. The two may coincide in their results, but, as we see in the case of the great ‘troublers of the world,’ they may often diverge. *Passive good*, again, is divided into *conservative*, and *perfective-enjoyment*, and *self-improvement*, of which the latter is the worthier. Ambition is a perverted form of the desire of self-improvement: ambitious men mistake an improved position for an improved character. Enjoyment, again, is of two kinds, for it may be found either in *tranquillity*, or *excitement*—in an *equable*, or an *intense* consciousness. There is something to be said for both of these: a man, who is content with the first, may be said to resemble a stone: a man, who cannot be happy without the second, may be compared to a man with the itch, always restless. In reality, men should combine the two. A well-trained mind will enjoy the intense satisfaction which comes from fulfilled desires, and will, at the same time, be contented under disappointment.

In § 6 Bacon returns to the subject of *the general good*, with a view of determining man's *duty to society*. This question belongs properly to ethics and

⁷³ We should be able to restrain ourselves, when on the very point of yielding to temptation, just as a skilled rider can turn his horse on the very brink of a precipice.

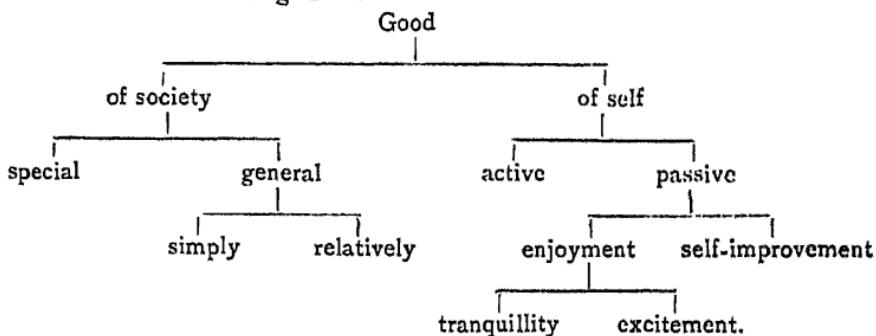
⁷⁴ *It*, see above, n. 51. *Tenderness*, cp. p. 35, n. 24. *Want of application*, p. 32, n. 87.

⁷⁵ *Civil*, p. 27, n. 46.

⁷⁶ *Catch in it*, the metaphor is taken from a thorn, catching in and tearing the dress of a passer-by. A man should have sufficient strength of mind to endure slights and annoyances, without being hurt by them. Plato often suggests that the philosopher should retire from a world which he despises, and in which he is not appreciated, and enjoy the happiness of a contemplative life. With these two sections, cp. pp. 311—3, § 5.

not to politics, for it concerns the direction of a man's individual conduct towards society, and not the direction of the actions of society. A man's social duty may be divided into two parts, his duty to society as a whole, and the special duties imposed on him by his position. The first has been sufficiently determined : the second class of duties has been treated, though not systematically. A systematic treatment of them is, perhaps, impossible. The duties of a position or profession are best explained by those who have filled or pursued it, provided that men do not unduly exalt their own position or calling. The king's treatise on the duty of a sovereign affords an admirable example of the way in which the subject of special duties should be handled. Bacon says this with no desire to flatter ; praise is not flattery, when it is both deserved and opportune. The same treatise, which expounds the duty of a profession, should also expose its frauds and vices, not as has been too much the custom, with a view to raise a laugh, but to put honest men on their guard. *Forewarned is forearmed* ; and, moreover, a knowledge of the ways of vice is necessary to its suppression. Under the head of special duties fall all those duties which are imposed on a man by relations into which he has voluntarily entered, such as marriage, and any kind of contract. Lastly, the determination of man's duty to society is not complete without a principle on which to decide between conflicting obligations, as, for instance, between one's duty towards one's family, and one's duty to the state.

These divisions of good, which may seem somewhat complicated, are exhibited in the following table :



XXI. 1. To resume private or particular good, it falleth into the division of good active and passive⁷⁶: for this difference of good (not unlike to that which amongst the Romans was expressed in the familiar⁷⁷ or household terms of *promus* and *condus*⁷⁸) is formed also

⁷⁶ This division of private good into active and passive is another radical distinction : the traces of it to be found in nature, mentioned below, are strings or fibres of this root. See p. 298, n. 15.

⁷⁷ *Familiar*, the Latin equivalent of the English word *household*, which follows.

⁷⁸ *Promus* and *condus*. By the *condus*, or *collector*, Bacon understands a servant whose business it was simply to collect the household stores, by the

in all things, and is best disclosed in the two several⁷⁹ appetites in creatures; the one to preserve or continue themselves, and the other to dilate or multiply themselves; whereof the latter seemeth to be the worthier: for⁸⁰ in nature the heavens, which are the more worthy, are the agent; and the earth, which is the less worthy, is the patient. In the pleasures of living creatures, that of generation⁸¹ is greater than that of food. In divine doctrine, *it is more blessed to give than to receive.*⁸² And in life, there is no man's spirit so soft, but esteemeth the effecting of somewhat that he hath fixed in his desire, more than sensuality; which priority⁸³ of the active good, is much upheld by the consideration of our estate⁸⁴ to be mortal and exposed to fortune. For if we mought have a perpetuity and certainty in our pleasures, the state⁸⁵ of them would advance their price. But when we see it is but *we think it a great thing to be a little longer in dying, and boast not thyself of to-morrow; for thou knowest not what a day may bring forth,* it maketh us to desire to have somewhat secured⁸⁶ and exempted from time, which are only our deeds and works: as it is said, *their works follow them.*⁸⁷ The preeminence likewise of this active good is upheld by the affection which is natural in man towards variety and proceeding⁸⁸; which in the pleasures of the sense, which is the principal part of passive good, can have no great latitude.

promus or drawer forth, a servant who dispensed them. The promus is a type of active, the condus of passive good.

⁷⁹ *Several*, distinct; cp. p. 152, n. 40.

⁸⁰ Cp. 'The appetites to give and to receive are figured in the universal frame of the world, the one in the beams of heaven which issue forth, and the other in the lap of the earth which takes in.'—*The Interpretation of Nature.*

⁸¹ *Generation*, p. 101, n. 71.

⁸² One of the recorded sayings of Jesus.

⁸³ *Priority*, superiority.

⁸⁴ *Estate*, condition. Instead of 'consideration . . . to be' we should now say 'consideration that our condition is.'

⁸⁵ *State*, stability. The student will notice that Bacon gives two reasons for the superiority of action to mere enjoyment: i., that the duration of pleasure is uncertain; ii., that pleasures soon pall. Of the two quotations which follow, one is from *Seneca*, the other from *Proverbs*, xxvii. 1. *Price*, value.

⁸⁶ *Somewhat secured . . . which are*, i.e. somewhat secured, &c., and the only things, which are secured, are, &c.

⁸⁷ "Blessed are the dead which die in the Lord, from henceforth . . . that they may rest from their labours; and their works do follow them."—*Revelation*, xiv. 13.

⁸⁸ *Proceeding*, progress; cp. p. 274, l. 13, &c.

Consider⁸⁹ how often you do the same thing; eating, sleeping, and playing succeed one another in a perpetual round; a man would die, though he were neither valiant, nor miserable, only upon a weariness to do the same thing so oft over and over. But in enterprises, pursuits and purposes of life, there is much variety; whereof men are sensible with pleasure in their inceptions,⁹⁰ progressions, recoils, reintegrations,⁹¹ approaches and attainings to their ends. So as it was well said, *Life without an object is tiresome and aimless.⁹²* Neither hath this active good any identity with the good of society, though in some case⁹³ it hath an incidence into it. For although it do many times bring forth acts of beneficence, yet it is with a respect private to⁹⁴ a man's own power, glory, amplification,⁹⁵ continuance; as appeareth plainly, when it findeth a contrary subject.⁹⁶ For that gigantine⁹⁷ state of mind which possesseth the troublers of the world, such as was Lucius Sylla⁹⁸ and infinite other in smaller model, who would have all men happy or unhappy as they were their friends or enemies,

⁸⁹ From Seneca, quoted again in his 2nd *Essay*, where he says, "A man would die, though he were neither valiant, nor miserable, only upon a weariness to do the same thing so oft, over and over."

⁹⁰ *Inceptions*, the beginnings of actions.

⁹¹ *Recoils, reintegrations*, in their intervals of rest, and in their return to action with strength renewed, The student may compare Sidgwick's remarks on the Pleasures of Pursuit, *Methods of Ethics*, Bk. I, ch. iv.; cp.

'All things that are,
Are with more spirit chased than enjoyed.'

Shakspeare. *Merchant of Venice*, 2, vii. 12.

⁹² As an instance of this, Bacon says in the *De Aug.*, that the most powerful monarchs, who can command all the pleasures, that the senses can wish for, often engage in some trifling pursuit, which is more to them than all the pleasures, that are within their reach. Thus Nero learned to play on the lyre, Commodus aimed at proficiency as a gladiator, Antoninus as a charioteer.

⁹³ *Case, cases. It hath an incidence into it*, it coincides with it; cp. p. 186, n. 12.

⁹⁴ *It is with a respect private to*, i.e. its only object is. The acts *may* be of general utility, but the motive for doing them was the good of the agent.

⁹⁵ *Amplification*, increase of dignity.

⁹⁶ *When it findeth a contrary subject*, when the good of the agent is something which is opposed to the good of society.

⁹⁷ *Gigantine*, giant-like. The first Napoleon is, in modern times, an instance of the class of men to whom Bacon is referring.

⁹⁸ *Lucius Sylla*, p. 93, n. 12. *In smaller model*, on a smaller scale.

and would give form to the world, according to their own humours⁹⁹ (which is the true theomachy), pretendeth¹ and aspireth to active good though it recedeth furthest from good of society, which we have determined to be the greater.

2. To resume passive good, it receiveth² a subdivision of conservative and perfective. For let us take a brief review of that which we have said; we have spoken first of the good of society, the intention whereof embraceth the form³ of human nature, whereof we are members and portions, and not our own proper⁴ and individual form: we have spoken of active good, and supposed it as a part of private and particular good. And rightly, for there is impressed upon all things a triple desire or appetite proceeding from love to themselves; one of preserving⁵ and continuing their form; another of advancing and perfecting their form; and a third of multiplying and extending their form upon other things: whereof the multiplying, or signature⁶ of it upon other things, is that which we handled by the name of active good. So as there remaineth the conserving of it, and perfecting or raising of it; which latter is the highest degree of passive good. For to preserve in state⁷ is the less, to preserve with advancement is the greater. So in man,⁸

*A fiery strength inspires their lives,
An essence that from heaven derives.*

His approach or assumption to divine or angelical nature is the

⁹⁹ *Humours*, p. 72, n. 46. *Theomachy*, warring against God. The word is suggested by the word *gigantine*, see p. 174, n. 50.

¹ *Pretendeth to*, has for its object; Cp. p. 52, n. 24. *To active good*, i.e., as he explains in the *De Aug.* ‘what seems to the agent to be for his own good.’

² *Receiveth*, p. 139, n. 50.

³ *Form*, p. 299, n. 17.

⁴ *Proper*, peculiar; see p. 139, n. 51.

⁵ *One of preserving, &c.*, i.e. passive, conservative good. *Another of advancing, &c.*, i.e. passive, perfective good.

⁶ *Signature*, impression. A man’s own form is impressed or stamped on all that he produces, his children, books, works, &c.

⁷ *In state*, in its present condition. *To preserve with advancement*, means ‘not only to preserve, but also to improve.’

⁸ *So in man*, The connexion between this and the preceding sentence is made clearer in the *De Aug.* thus, “There are, throughout the universe, certain noble natures, which lower natures look to as their origin, and the dignity and excellence of which they strive to attain. So, it was well said of man,” &c. The quotation is from Virgil, *Eneid* vi. 730.

perfection of his form ; the error or false imitation of which good⁹ is that which is the tempest of human life ; while man, upon the instinct of an advancement formal and essential,¹⁰ is carried to seek an advancement local. For as those which are sick, and find no remedy, do tumble up and down and change place, as if by a remove local they could obtain a remove internal ; so is it with men in ambition, when failing of the mean¹¹ to exalt their nature, they are in a perpetual estuation to exalt their place. So then passive good is, as was said, either conservative or perfective.

3. To resume the good of conservation or comfort, which consisteth in the fruition of that which is agreeable to our natures ; it seemeth to be the most pure and natural of pleasures, but yet the softest¹² and the lowest. And this also receiveth¹³ a difference, which hath neither been well judged of, nor well inquired : for the good of fruition or contentment is placed either in the sincereness of the fruition, or in the quickness¹⁴ and vigour of it ; the one superinduced by equality,¹⁵ the other by vicissitude ; the one having less mixture of evil, the other more impression of good. Whether of these is the greater good is a question controverted ; but whether man's nature may not be capable of both, is a question not inquired.

4. The¹⁶ former question being debated between Socrates and a

⁹ Good, viz., perfective good.

¹⁰ Formal and essential, see p. 299, n. 17.

¹¹ The mean, the means. Estuation, excitement.

¹² The softest, the most effeminate.

¹³ Receiveth, p. 118, n. 97.

¹⁴ Quickness, intensity ; cp. p. 298, n. 10.

¹⁵ Equality, i. e. absence of change. Some men of weak passions and gentle natures go through life in a tranquil and contented state of mind because their wants are small and easily satisfied. This state of mind has less mixture of evil, because it is never disturbed by the sense of disappointed desires and expectations. Other men, whose passions are strong, and whose natures are excitable, are never happy except in the attainment of some cherished end, or the satisfaction of some strongly felt desire. Their state of mind has more impression of good, because every fulfilled desire seems to be a fresh point gained for themselves. The intervals of disappointment and anxious waiting and struggling are forgotten in the intensity of the present satisfaction, which with them is always great : for the more strongly a thing is desired, the more pleasant is the attainment of it.

¹⁶ See Plato's *Gorgias*, p. 494. For Socrates and the sophists, see p. 123, n. 43.

sophist, Socrates placing felicity in an equal¹⁷ and constant peace of mind, and the sophist in much desiring and much enjoying, they fell from argument to ill words : the sophist saying that Socrates' felicity was the felicity of a block or stone ; and Socrates saying that the sophist's felicity was the felicity of one that had the itch, who did nothing but itch and scratch. And both these opinions do not want their supports. For the opinion of Socrates is much upheld by the general consent even of the Epicures¹⁸ themselves, that virtue beareth a great part in felicity ; and if so, certain it is, that virtue hath more use in clearing perturbations¹⁹ than in compassing desires. The sophist's opinion is much favoured by the assertion we last spake of,²⁰ that good of advancement is greater than good of simple preservation ; because every obtaining a desire hath a show of advancement,²¹ as motion though in a circle hath a show of progression.

5. But the second question,²² decided the true way, maketh the former superfluous. For can it be doubted, but that there are some who take more pleasure in enjoying pleasures than some other, and yet, nevertheless, are less troubled with the loss or leaving of them ? So as this same, *Do not use a thing, lest you should feel the want of it : shun the want of it, lest you should fear to lose it*, are the precautions of weak and cowardly minds. And it seemeth to me, that most of the doctrines of the philosophers are more fearful²³ and cautionary than the nature of things requireth. So have they increased the fear

¹⁷ Equal, undisturbed ; cp. p. 310, n. 15.

¹⁸ Epicures, Epicureans ; see p. 302, n. 54.

¹⁹ In clearing perturbations, in calming a troubled mind.

²⁰ We last spake of, p. 309, l. 18. For advancement, see p. 309, n. 7.

²¹ Hath a show of advancement, appears to do something towards the perfecting of our nature. Whether it does so or not, depends upon circumstances. A desire to overcome some vicious habit does, if fulfilled, contribute to the perfection of our nature. On the other hand, a persistence in vicious habits breeds vicious desires ; and the gratification of such desires degrades, instead of perfecting, our nature.

²² The second question, viz., whether a man may not combine the two states of mind, tranquil contentment and intensity of enjoyment. Cp. Mill's *Utilitarianism*, Edn. 4, p. 18. "Happiness is not a life of rapture, but moments of such, in an existence made up of few and transitory pains, many and various pleasures, with a decided predominance of the active over the passive, and having as the foundation of the whole, not to expect more from life than it is capable of bestowing."

²³ Fearful, timid. Cautionary, full of warnings. With what follows, cp. p. 96, l. 12, sq., and Bacon's *2nd Essay*.

of death in offering to cure it. For when they would have a man's whole life to be but a discipline or preparation to die, they must needs make men think that it is a terrible enemy, against whom there is no end of preparing. Better saith the poet :

*A soul that can securely death defy,
And count it Nature's privilege to die.²⁴*

So have they sought to make men's minds too uniform and harmonical,²⁵ by not breaking them²⁶ sufficiently to contrary motions : the reason whereof I suppose to be because they themselves were men dedicated to a private, free, and unapplied²⁷ course of life. For as we see, upon the lute or like instrument, a ground,²⁸ though it be sweet and have show of many changes, yet breaketh not the hand to such strange and hard stops and passages, as a set song or voluntary ; much after the same manner was the diversity between a philosophical and a civil²⁹ life. And therefore men are to imitate the wisdom of jewellers ; who if there be a grain, or a cloud, or an ice³⁰ which may be ground forth without taking too much of the stone, they help it³¹ ;

²⁴ Juvenal, Satire 10, 358. With what follows, cp. pp. 304—5, §§ 11-12, where Bacon has already said that a man has no business to seek peace of mind by avoiding the possibility of annoyance.

²⁵ *Harmonical*, harmonious. A mind, whose peace and enjoyment are never disturbed, is compared to pleasing music, the harmony of which is never interrupted by harsh or discordant sounds.

²⁶ *Breaking them*, p. 244, n. 60. Cp. below, l. 12. *Contrary motions*, i.e. to any thing which disturbs their peace of mind.

²⁷ *Unapplied*, i.e. freed from the necessity of humouring others. Cp. p. 32, n. 87.

²⁸ *A ground*, an air or melody, which consists of a succession of single notes. *A set song or voluntary* is a harmony, which is a succession of combinations of notes. It cannot require so much *execution*, i.e. quickness and dexterity of hand, to play single notes in succession, however rapid and various may be the intervals, as it does to play combinations of notes, or, as they are called, *chords*. Similarly, says Bacon, it is easy to preserve serenity of mind by avoiding difficulties. But just as he is the best musician, who can play with ease a difficult harmony, so is he the best man, who can preserve serenity of mind in the midst of difficulties and vexations.

²⁹ *Civil*, p. 305, n. 74.

³⁰ *An ice*, a flaw in a jewel, so called from its resemblance to ice. A jeweller will leave a flaw in a stone, rather than destroy the stone altogether ; so, although a man may avoid annoyances which would destroy his peace of mind altogether, still he must not so far avoid all causes of annoyance, as to deprive himself altogether of the power of endurance.

³¹ *They help it*, they remedy it. *Abate*, equivalent to *lessen*.

but if it should lessen and abate the stone too much, they will not meddle with it: so ought men so to procure serenity as they destroy not magnanimity.

6. Having^{ss} therefore deduced the good of man which is private and particular, as far as seemeth fit, we will now return to that good of man which respecteth and beholdeith society, which we may term duty; because the term of duty is more proper to a mind well framed and disposed towards others, as the term of virtue is applied to a mind well formed and composed in itself: though neither can a man understand virtue without some relation to society, nor duty without an inward disposition. This part may seem at first to pertain to science civil and politicst: but not if it be well observed. For it concerneth the regiment^{su} and government of every man over himself and not over others. And as in architecture the direction of framing the posts, beams, and other parts of building, is not the same with the manner of joining them and erecting the building; and in mechanicals,^{sv} the direction how to frame an instrument or engine, is not the same with the manner of setting it on^{sw} work and employing it; and yet nevertheless in expressing of the one you incidently express the aptness towards the other; so the doctrine of conjugationst of men in society differeth from that of their conformity thereunto.^{ss}

7. This part of duty is subdivided into two parts: the common duty of every man, as a man or member of a state; the other, the respectivest or special duty of every man, in his profession, vocation, and place. The first of these is extant and well laboured, as^{so} hath been said. The second likewise I may report rather dispersed than deficient; which manner of dispersed writing in this kind of

^{ss} The student should notice that the distinction, which Bacon draws between the good of the individual and the good of society, is analogous to the modern distinction between the self-regarding, and the extra-regarding virtues.

st *Civil and politic, political.* Cp. p. 111, n. 40; and p. 286, n. 26. The two words are equivalent, the first being Latin, and the second Greek.

^{su} *Regiment*, equivalent to *government*.

^{sv} *Mechanicals*, mechanics.

^{sw} *On*, we should now say *at*.

st *Conjugation*, p. 124, n. 47. This 'doctrine' or science is politics.

st *That of their conformity thereunto*, i.e. that science which deals with the conformation of men to the requirements of society, viz., Ethics.

^{ss} *Respective*, peculiar.

^{so} See pp. 296—7, § 4.

argument⁴¹ I acknowledge to be best. For who can take upon him to write of the proper duty, virtue, challenge,⁴² and right of every several vocation, profession, and place? For although sometimes a looker on may see more than a gamester,⁴³ and there be a proverb more arrogant than sound, *That the vale best discovereth the hill*⁴⁴; yet there is small doubt but that men can write best and most really and materially⁴⁵ in their own professions; and that the writing of speculative men of active matter⁴⁶ for the most part doth seem to men of experience, as Phormio's argument of the wars seemed to Hannibal, to be but dreams and dotage. Only there is one vice which accompanieth them that write in their own professions, that they magnify them in excess. But generally it were to be wished (as that which would make learning indeed solid and fruitful) that active men⁴⁷ would or could become writers.

8. In which kind⁴⁸ I cannot but mention, *with honour*, your Majesty's excellent book touching the duty of a king: a work richly

⁴¹ *Argument*, p. 266, n. 14.

⁴² *Challenge*, claim. Under the head of *common duty* fall such virtues as benevolence, justice, law-observance, truth-speaking, &c. Under the head of *respective duty* fall the reciprocal rights and obligations of kings and subjects, lawyers and clients, kings and ministers, judges and suitors, besides the special duties imposed by marriage, friendship, &c. The student, who cares to refer to Spedding's *Francis Bacon and his Times*, Vol. 2, p. 151, sq., and p. 213, sq., will find an exposition of special duties by Bacon himself.

⁴³ *A gamester*, one who is engaged in a game.

⁴⁴ *That the vale, &c.*, i.e. that the best view of a mountain is obtained from the valley. Bacon says in the *De Aug.* that this proverb is used by common people to justify their censures of the great.

⁴⁵ *Really and materially*, truly and to the point.

⁴⁶ *Active matter*, matters pertaining to action. Bacon means to say, that only a lawyer can decide the duties of a lawyer to his client, and so forth, because he alone knows the difficulties which the relation imposes, and the occasions and subjects in connection with which questions of ethics or casuistry do, in practice, arise. When Hannibal, after his expulsion from Carthage, took refuge at Ephesus, he was invited to hear Phormio, a Peripatetic, discourse on the duty of a general and on the art of war. Phormio discoursed for several hours and was loudly applauded by all but Hannibal, who, when asked his opinion, said that he had often seen mad men, but that he had never seen any body who was so mad as Phormio.

⁴⁷ *Active men*, men in active courses; see p. 112, n. 47.

⁴⁸ *In which kind*, i.e. amongst books written by 'active men' on the duties of their profession.

compounded of divinity, morality, and policy⁴⁹ with great aspersion⁵⁰ of all other arts ; and being in mine opinion one of the most sound and healthful writings that I have read ; not distempered⁵¹ in the heat of invention, nor in the coldness of negligence ; not sick of dizziness, as those are who leese⁵² themselves in their order, nor of convulsions, as those which cramp⁵³ in matters impertinent ; not savouring of perfumes and paintings,⁵⁴ as those do who seek to please the reader more than nature⁵⁵ beareth ; and chiefly well disposed in the spirits⁵⁶ thereof, being agreeable to truth and apt for action ; and far removed from that natural infirmity, whereunto I noted those that write in their own professions to be subject, which is, that they exalt it above measure. For your Majesty hath truly described, not a king of Assyria or Persia in their extern glory, but a Moses or a David,⁵⁷ pastors of their people. Neither can I ever leese out of my remembrance what I heard your Majesty in the same sacred spirit of government deliver in a great cause of judicature,⁵⁸ which was, *That kings ruled by their laws, as God did*

⁴⁹ *Divinity, morality, and policy*, theology, moral philosophy, and political philosophy, corresponding to the three divisions of the *Basilicon Doron*, 1, of a king's Christian duty towards God ; 2, of a king's duty in his office ; 3, of a king's behaviour in things indifferent.

⁵⁰ *Aspersion*, p. 69, n. 25.

⁵¹ *Distempered*, p. 207, n. 30. The word, which is more properly applied to bodily derangements, is probably suggested by the words 'sound and healthful,' which precede. The book is not disfigured either by passion or carelessness.

⁵² *Leese*, p. 53, n. 34 ; cp. below, l. 15. A discursive writer is compared to a man attacked by giddiness.

⁵³ The words *convulsion* and *cramp* signify, properly, unnatural distortions of the limbs through pain : applied to writing, they signify an unnatural and forced style. Digressions on matters irrelevant cramp and distort the natural order of the book. *Impertinent*, p. 118, n. 96.

⁵⁴ *Perfumes and paintings*, ornaments of style. Cp. 'to paint the winds,' p. 114, l. 5.

⁵⁵ *Nature*, the nature of the argument ; cp. p. 295, l. 26, sq.

⁵⁶ *The spirits*, i. e. the *matter* as opposed to the form of the book ; cp. 'Life of Reason and Invention,' p. 41, l. 9. The matter is the life of a book, just as the spirit is the life of the body.

⁵⁷ *David*, the second Jewish king.

⁵⁸ Spedding supposes that he is referring to the case of Sir Francis Goodwin in 1604, when the question was whether it belonged to the House of Commons or the Court of Chancery to judge of the validity of an election.

by the laws of nature ; and ought as rarely to put in use their supreme prerogative, as God doth his power of working miracles. And yet notwithstanding, in your book of a free⁵⁹ monarchy, you do well give men to understand, that you know the plenitude of the power and right of a king, as well as the circle⁶⁰ of his office and duty. Thus have I presumed to allege this excellent writing of your Majesty, as a prime or eminent example of tractates concerning special and respective duties : wherein I should have said as much, if it had been written a thousand years since. Neither am I moved with certain courtly decencies, which esteem it flattery to praise in presence. No, it is flattery to praise in absence ; that is, when either the virtue is absent, or the occasion is absent ; and so the praise is not natural, but forced, either in truth or in time. But let Cicero be read in his oration *in defence of Marcellus*, which is nothing but an excellent table⁶¹ of Cæsar's virtue, and made to his face ; besides the example of many other excellent persons, wiser a great deal than such observers ; and we will never doubt, upon a full occasion, to give just praises to present or absent.

9. But to return : there belongeth further to the handling of this part, touching the duties of professions and vocations, a relative or opposite, touching the frauds, cautels,⁶² impostures, and vices of every profession, which hath been likewise handled : but how ? rather in a satire and cynically, than seriously and wisely : for men have rather sought by wit to deride and traduce⁶³ much of that which is good in

The extent of the king's prerogative was a burning question in the time of James I., and a point on which the king was extremely sensitive. Whenever a dispute arose on the subject between the House and the king, it was always Bacon's object to effect a compromise on the particular point at issue, rather than enter into a contest with the king on the general question. In considering Bacon's estimate of the king's book, large allowance must be made for a politic and courtly exaggeration. See n. on the Introductory Dedication to the King, Bk. I.

⁵⁹ Free, absolute. Bacon refers to 'The Trew Law of Free Monarchies, or the reciproc and mutual duetie betwixt a free king and his naturall subjects.' James, in reality, maintained the divine right and absolute authority of kings.

⁶⁰ Circle, limits.

⁶¹ Table, p. 83, n. 35. Cicero's oration was addressed to Cæsar in the Senate. The object of it was to induce Cæsar to allow one of his opponents, Marcellus, to return from exile and live in Rome.

⁶² Cautels, deceits.

⁶³ Traduce, p. 27, n. 49.

professions, than with judgement to discover and sever that which is corrupt. For, as Salomon saith, he that cometh to seek after knowledge with a mind to scorn and censure, shall be sure to find matter for his humour, but no matter for his instruction : *A scorner seeketh*

*Of cautels wisdom, and findeth it not : but knowledge is easy unto
and evil practi- him that understandeth.* But the managing of this

argument⁶⁴ with integrity and truth, which I note as deficient, seemeth to me to be one of the best fortifications for honesty and virtue that can be planted. For, as the fable goeth of the basilisk, that if he see you first, you die for it ; but if you see him first, he dieth : so is it with deceits and evil arts ; which, if they be first espied they leese their life ; but if they prevent,⁶⁵ they endanger. So that we are much behoden to Machiavel and others, that write what men do, and not what they ought to do. For it is not possible to join serpentine wisdom with the columbine innocency, except men know exactly all the conditions of the serpent⁶⁶ ; his baseness and going upon his belly, his volubility⁶⁷ and lubricity, his envy and sting, and the rest ; that is, all forms and natures⁶⁸ of evil. For without this, virtue lieth open and unfenced. Nay, an honest man can do no good upon those that are wicked, to reclaim them, without the help of the knowledge of evil. For men of corrupted minds presuppose that honesty groweth out of simplicity of manners,⁶⁹ and

⁶⁴ *Argument*, p. 266, n. 14.

⁶⁵ *Prevent*, anticipate us, by seeing us first; cp. p. 271, n. 35.

⁶⁶ The serpent is taken as the type of deceit, because Satan tempted Eve in the form of a serpent. *Going upon his belly*, meanness. The words refer to the curse pronounced upon the serpent by God, after the temptation, "Because thou hast done this, thou art cursed above all cattle, and above every beast of the field; *upon thy belly shalt thou go*, and dust shalt thou eat all the days of thy life."

⁶⁷ *Volubility*, his rolling or twisting motion: i.e. the underhand shifts of deceit. *Lubricity*, slipperiness, i.e. craft. Ellis quotes, as a parallel to this passage, "One should wed the innocence of the dove, in giving offence to no one, to the wisdom and astuteness of the serpent, in keeping on one's guard against the craft, and treachery, and wiles of others."—*Charron*. Cp. Cowper's epigram—

"That thou may'st injure no man, dove-like be,
And serpent-like, that none may injure thee."

⁶⁸ *Nature*, kinds.

⁶⁹ *Manners*, p. 24, n. 28. Plato, in the 3rd Book of the *Republic*, says that the bad have no knowledge of virtue; in another passage, however, he contradicts this, and says more truly that the evil may form a correct estimate

believing of preachers, schoolmasters, and men's exterior language. So as except you can make them perceive that you know the utmost reaches of their own corrupt opinions, they despise all morality. *A fool will not receive the words of wisdom, unless you tell him what is in his own heart.*

10. Unto this part, touching respective duty, doth also appertain the duties between husband and wife, parent and child, master and servant. So likewise the laws of friendship and gratitude, the civil bond of companies,⁷⁰ colleges, and politic bodies, of neighbourhood, and all other proportionate⁷¹ duties; not as they are parts of government and society, but as to the framing⁷² of the mind of particular persons.

11. The knowledge concerning good respecting society doth handle it also not simply⁷³ alone, but comparatively; whereunto belongeth the weighing of duties between person and person, case and case, particular and public. As we see in the proceeding of Lucius⁷⁴

of the good. He says also that a judge should always be a man advanced in years who has passed his youth in innocence, and became acquainted late in life with vice in others. Upon this Professor Jowett remarks that there is a directness of aim in virtue which gives an insight into vice, and also that the knowledge of character is in some degree a natural sense independent of any special experience of good and evil.

⁷⁰ *The civil bond of companies*, i.e. the duties which members of a corporation owe to one another. For *civil*, see p. 111, n. 40. Here it means, 'relating to man considered, not as a member of a state only, but of any corporation, community, or fraternity.' *Colleges*, used, not in the special sense in which we now use it, but as equivalent to company, or body. *Politic*, political.

⁷¹ *Proportionate*, similar. The student will find many of these 'respective duties' discussed in Sidgwick's *Methods of Ethics*, Bk. 3, ch. iv.

⁷² *As to the framing, &c.* i.e. as to the way in which the minds of individuals may be trained and disposed to maintain these bonds of society; cp. p. 313, l. 11, sq. Political science frames the ordinances of society, ethical science considers how men may be brought to observe those ordinances. We should hardly accept this as a complete account of the relation of ethics to politics. As civilization advances, less is left to law, and more to ethics. The observances which are essential to social well-being are maintained by law: but the outline, sketched by the law, is filled in by morality. We do not necessarily consider that a man has done his duty, because he has done all that he could be legally compelled to do. There is, also, a case in which law and morality may conflict: viz., when a man is called upon by law to do that which he thinks to be wrong.

⁷³ *Not simply, &c.*; see p. 296, n. 98.

⁷⁴ *Lucius Brutus*, one of the first Consuls of Rome, sat in judgement on and

Brutus against his own sons, which was so much extolled ; yet what was said ?

Unhappy man, whatever posterity shall think of your deed !

So the case was doubtful, and had opinion on both sides. Again, we see when M. Brutus and Cassius⁷⁵ invited to a supper certain whose opinions they meant to feel,⁷⁶ whether they were fit to be made their associates, and cast forth the question touching the killing of a tyrant being an usurper, they were divided in opinion ; some holding that servitude was the extreme of evils, and others that tyranny was better than a civil war : and a number of the like cases there are of comparative duty. Amongst which that of all others is the most frequent, where the question is of a great deal of good to ensue of a small injustice. Which Jason⁷⁷ of Thessalia determined against the truth : *A little evil must be done to secure a greater good.* But the reply is good, *You can do what is right now, but you have no security for the good that is to be done in the future.* Men must pursue things which are just in present,⁷⁸ and leave the future to the divine

condemned his own sons for conspiring to restore the monarchical form of government.

The quotation, which follows, is from Virgil, *Aeneid* vi. 823.

⁷⁵ Brutus and Cassius were the leaders of the conspiracy, by which Julius Caesar lost his life.

⁷⁶ *To feel*, we still call a remark, made to elicit the opinion of another, *a feeler*.

⁷⁷ Jason, p. 94, n. 23. The consideration of the morality of infringing general rules in particular cases belongs to *casuistry*, a science which may be said to aim at securing a like accuracy in the definition of moral acts, as the law provides in the case of legal acts.

⁷⁸ *In present*, at the present time. Bacon's way, which is the common way, of stating this often discussed question, is unfair. Instead of saying, may we not do evil that good may come ? we should say, is it not *right* in certain cases to do that, which it would be wrong to do in the majority of cases ? Now, if moral rules are determined with reference to some principle, it is almost a truism to say, that one rule cannot provide for all the circumstances, under which men may be called on to act. If it is right to speak the truth, because society cannot exist where there is no mutual confidence, then it must be right to tell a lie, where speaking the truth would imperil the existence of society. At the same time, considering the demonstrated necessity of a general observance of the law of truth-speaking, the burden of proof must always lie with those who would justify an infringement of it in a particular case.

Providence. So then we pass on from this general part touching the exemplar and description of good.

XXII. Pp. 321—337. Now that we have determined what man ought to do, it remains to consider how he may be brought to do it. That men are not sensible of the need of reformation, is no proof that the need does not exist. A man, who is sick without knowing it, wants awakening to a sense of his condition. Religion teaches us how to reform ourselves, but not completely. Ethics must do for theology what a servant does for her mistress, viz., interpret, and carry out directions, which are only given in outline. It is strange that there are no books dealing systematically with the proper means of reforming the character, specially, as it is a subject on which most men talk wisely and well. Bacon proposes to consider a few of the main points, which such a book should embrace.

In the first place, we must consider what is, and what is not, in our power. To begin with, we cannot alter our character, or our position. Of these, if they be bad, it is our duty to make the best that we can, just as a farmer strives to make the best of a bad soil, and bad seasons. Now, before we can determine how a thing may be turned to the best advantage, we must know all about the thing itself. The first thing to be done, therefore, is to ascertain the most frequent differences of character, paying special attention to those differences, which involve the greatest number of subordinate differences. For instance, some men are lovers of peace, others are quarrelsome: some are benevolent, others are malicious. We find a few such distinctions, recognized casually in books on Astrology, in certain Italian records, and in the language of every-day life; but they have not been systematically set forth, nor made the basis of practical precepts. In the next place, we must ascertain those differences of character and disposition, which are due to sex, age, climate, &c., and to external circumstances. Unless we know these, we shall prescribe the same moral training to men of the most diverse character, which would be like prescribing the same medicine to every patient. Thirdly, we require a full and complete analysis of the passions, which are, as it were, the diseases of the mind. Mere subtle disquisitions about pleasure and pain are not sufficient. Pleasure and pain are not the passions, but the objects which excite the passions. At present, the poets are our best instructors as to the working of the passions. In connection with this subject, it is most important to consider, how a man may keep himself in the right path by setting one passion against another, as, for instance, by checking the love of gain by the love of reputation. Passing now, § 7, to points within our power, Bacon requires a consideration of the power of habit, praise, reproof, reading, &c., to influence the character for good. Habit will cure many natural defects, and Bacon propounds a few directions for securing this end. §§ 9—12. In the matter of reading, he says that there are certain books, which should not be put into a boy's hands, because they unsettle the minds of all who have not been well grounded in the principles of true religion and morality. Again, much may be done by good resolutions, made when the mind is well disposed towards virtue, and by

imposing on ourselves a habit of doing penance for offences committed. A gradual growth in virtue is best secured by the choice of noble ends, and a resolute determination to attain them. If a man will obey his religion, and aim resolutely at charity, he will find that all other virtues will come in of themselves, and that he has approached, as near as he can, to the divine perfection.

These remarks, says Bacon, will seem trite and commonplace; but my object has been to collect these scattered maxims, which constitute the wisdom of life, and which most men think not worth the collecting. Moreover, the usefulness of a thing is not in proportion to the show which it makes.

The object of Ethics, then, is to do for the mind what physic does for the body: to give it health, strength, beauty, and a capacity of enjoying innocent pleasures.

XXII. I. Now therefore that we have spoken of this fruit⁷⁹ of *Of the culture of the mind* life, it remaineth to speak of the husbandry that belongeth thereunto; without which part the former seemeth to be no better than a fair image, or statua, which is beautiful to contemplate, but is without life and motion; whereunto Aristotle himself subscribeth in these words: *With regard to virtue we have to determine both what it is and whence it proceeds. For it is of little use to know virtue, if we do not know the means and ways of acquiring it. For, with regard to virtue, we have to inquire not only what it is, but also how it may be attained: and we cannot learn this without knowing both whence it proceeds and how it is acquired.* In such full words and with such iteration doth he inculcate this part. So saith Cicero in great commendation of Cato the second, that he had applied himself to philosophy, *not for the sake of arguing philosophically, but that he might live like a philosopher.* And although the neglect of our times, wherein few men do hold any consultations touching the reformation of their life (as Seneca excellently saith, *Every one thinks about the parts of his life, no man about the whole*), may make this part seem superfluous; yet I must conclude with that aphorism of Hippocrates,⁸⁰ *Those who are sick without feeling pain are diseased.*

⁷⁹ *Fruit*, vis., good, which is the proper object of man's life. The word *fruit* is suggested by the word *husbandry*, which follows. See p. 296, n. 94. With what follows, cp. pp. 294—5, § 1.

⁸⁰ *Hippocrates*, p. 53, n. 36. In the *Interpretation of Nature*, Bacon says that the words of Seneca describe 'a course very ordinary with men who receive for the most part their final ends from the inclination of their nature, or from common example and opinion, never questioning them or examining them, nor reducing them to any clear certainty; and use only to call themselves to account and deliberation touching the means and second ends, and thereby

in their minds. They need medicine, not only to assuage the disease, but to awake the sense. And if it be said, that the cure of men's minds belongeth to sacred divinity,⁸¹ it is most true; but yet moral philosophy may be preferred unto her as a wise servant and humble handmaid. For as the psalm⁸² saith, *That the eyes of the handmaid look perpetually towards the mistress,* and yet no doubt many things are left to the discretion of the handmaid, to discern of the mistress' will; so ought moral philosophy to give a constant attention to the doctrines of divinity, and yet so as⁸³ it may yield of herself (within due limits) many sound and profitable directions.

2. This part therefore, because of the excellency thereof, I cannot but find exceeding strange that it is not reduced to written inquiry: the rather, because it consisteth of much matter, wherein both speech and action is often conversant⁸⁴; and such wherein the common talk of men (which is rare, but yet cometh sometimes to pass) is wiser than their books. It is reasonable therefore that we propound it in the more particularity,⁸⁵ both for the worthiness, and because⁸⁶ we may acquit ourselves for reporting it deficient; which seemeth almost incredible, and is otherwise conceived and presupposed by those themselves that have written. We will therefore enumerate some heads or points thereof, that it may appear the better what it is, and whether it be extant.

3. First therefore in this, as in all things which are practical,⁸⁷ we ought to cast up our account, what is in our power, and what not; for the one may be dealt with by way of alteration, but the other by way of application⁸⁸ only. The husbandman cannot command, neither the nature of the earth, nor the seasons of the weather; no

set themselves in the right way to the wrong place.' Cp. Sidgwick's *Method of Ethics*, Bk. 3, ch. 3.

⁸¹ *Sacred divinity*, theology. *Preferred unto her*, recommended to her. In the *De Aug.* it is, 'taken into her household, as a servant.'

⁸² *Psalm*, p. 73, n. 56. As to the relation of theology to ethics, see p. 67, n. 13.

⁸³ *And yet so as*, i.e. still, though it must take directions from theology, it is competent to give direction itself.

⁸⁴ *Conversant*, p. 284, n. 8.

⁸⁵ *In the more particularity*, more in detail. *For the worthiness*, because of its worth. For *the*, we should say either 'its,' or 'the worthiness of it.'

⁸⁶ *Because*, in order that.

⁸⁷ *Which are practical*, which concern practice.

⁸⁸ *Application*, the endeavour to make the best possible use of a thing. See p. 323, l. 10, sq.

more can the physician the constitution of the patient, nor the variety of accidents.⁸⁹ So in the culture and cure of the mind of man, two things are without⁹⁰ our command; points of nature, and points of fortune. For to the basis⁹¹ of the one, and the conditions of the other, our work is limited and tied. In these things therefore it is left unto us to proceed by application:

All fortune may be overcome by suffering,
and so likewise,

All nature may be overcome by suffering.

But when that we speak of suffering, we do not speak of a dull and neglected suffering; but of a wise and industrious suffering, which draweth and contriveth use and advantage out of that which seemeth adverse and contrary; which is that properly which we call accommodating or applying. Now the wisdom of application resteth principally in the exact and distinct knowledge of the precedent state or disposition, unto which we do apply: for we cannot fit a garment, except we first take measure of the body.

4. So then the first article of this knowledge is, to set down sound and true distributions and descriptions of the several characters and tempers of men's natures and dispositions; specially having regard to those differences which are most radical in being the fountains and causes of the rest, or most frequent in concurrence or commixture; wherein it is not the handling of a few of them in passage,⁹² the better to describe the mediocrities of virtues, that can satisfy this intention. For if it deserve to be considered, that there are minds which are proportioned to great matters, and others to small (which Aristotle handleth or ought to have handled by the name of magnanimity), doth it not deserve as well to be considered, that there are minds proportioned to intend⁹³ many matters, and others to few? So that some can divide themselves⁹⁴: others can perchance

⁸⁹ *Accidents*, p. 17, n. 76.

⁹⁰ *Without*, beyond. Cp. 'without contradiction', p. 293, l. 18.

⁹¹ *Basis*, our character, such as it is by nature, is the material given us to work upon; our external circumstances are the conditions, under which the work of reformation has to be carried on. Cp. p. 177, l. 1, sq.

⁹² *In passage*, p. 110, n. 35.

⁹³ *To intend*, p. 208, n. 41. Ellis supposes that a second 'intend' has dropped out between the words *to* and *few*. Bacon refers to Aristotle's *Ethics*, Bk. 4, ch. 7.

⁹⁴ *Divide themselves*, pay attention to a number of things at once.

do exactly well, but it must be but in few things at once: and so there cometh to be a narrowness of mind, as well as a pusillanimity. And again, that some minds are proportioned to that which may be dispatched at once, or within a short return of time; others to that which begins afar off, and is to be won with length of pursuit:

He⁹⁵ nurses and attends to his project while it is yet in its cradle.

So that there may be fitly said to be a longanimity, which is commonly also ascribed to God as a magnanimity. So further deserved it to be considered by Aristotle, *That⁹⁶ there is a disposition in conversation (supposing it in things which do in no sort touch or concern a man's self) to soothe and please; and a disposition contrary to contradict and cross;* and deserveth it not much better to be considered, *That there is a disposition, not in conversation or talk, but in matter of more serious nature (and supposing it still in things merely indifferent), to take pleasure in the good of another: and a disposition contrariwise, to take distaste at the good of another?* which is that properly which we call good nature or ill nature, benignity or malignity: and therefore I cannot sufficiently marvel that this part of knowledge, touching the several characters of natures and dispositions should be omitted both in morality⁹⁷ and policy; considering it is of so great ministry and suppeditation⁹⁸ to them both. A man shall find in the traditions of astrology some pretty and apt divisions of men's natures, according to the predominances of the planets; lovers⁹⁹ of quiet, lovers of action, lovers of victory, lovers of honour, lovers of pleasure, lovers of arts, lovers of change, and so forth. A¹ man shall find in the wisest sort of these relations which the Italians make touching con-claves, the natures of the several cardinals handsomely and lively painted forth. A man shall meet with in every day's conference the

⁹⁵ Virgil. *AEn.* I. 22. The word *longanimity*, (length of mind,) is formed on the analogy of magnanimity, to denote the power of working for an end, the attainment of which is remote.

⁹⁶ Aristotle's *Ethics*, Bk 4, ch. 6.

⁹⁷ *Morality*, p. 283, n. 2. *Policy*, p. 136, n. 33.

⁹⁸ *Ministry, and suppeditation*, service and assistance.

⁹⁹ Cp. p. 63, l. 6, sq.

1. When any Italian state sent an ambassador to Rome, he on his return made a report which generally contained some remarks on the character of the Pope and the different Cardinals. In Appendix 5 and 6 of Ranke's *History of the Popes*, the student will find some of the reports made by Venetian ambassadors to the Venetian Senate.

denominations of sensitive, dry, formal, real,² humorous, certain, *men of the first impression, men of the last impression*, and the like: and yet nevertheless this kind of observations wandereth in words, but is not fixed in inquiry. For the distinctions are found (many of them), but we conclude no precepts upon them: wherein our fault is the greater; because both history, poesy, and daily experience are as goodly fields where these observations grow; whereof we make a few posies to hold in our hands, but no man bringeth them to the confectionary,³ that receipts mought be made of them for use of life.

5. Of much like kind are those impressions of nature, which are imposed upon the mind by the sex, by the age, by the region, by health and sickness, by beauty and deformity,⁴ and the like, which are inherent

² *Real*, matter of fact: opposed to *humorous*. *Certain*, positive. The *Characters* of Theophrastus deals in a humorous way with the subject Bacon is discussing.

³ *The confectionary*, the compounder, the man who makes up medicines; cp. *confections of sale*, p. 214, l. 20. *Receipts*, prescriptions; cp. *receipts of propriety*, p. 214, n. 86. Bacon uses terms proper to medicine, because the precepts, which are to be based on these observations of character, are for the cure of the mind, just as the prescriptions of the physician are for the cure of the body.

In the *De Aug.* Bacon says that the materials for such a treatise on character as he requires are to be found in the observations, which the wiser kind of historians interweave into their text, concerning the character of any individual, whose acts they have occasion to describe. He quotes certain descriptions of character by historians, of which he wishes an analysis to be made. The analysis should give merely a sketch, in outline, of the features of each character, with their combinations, and relations to one another. Such an analysis, he says, would constitute a scientific and accurate anatomy of mind and character, revealing the hidden peculiarities of individual character, a knowledge of which would enable us to frame sound precepts for the proper treatment of the mind and character.

⁴ By *beauty and deformity*, see Bacon's 43rd and 44th *Essays on Beauty and Deformity*. "Neither is it almost seen that very beautiful persons are otherwise of great virtue . . . and therefore they . . . study rather behaviour than virtue. But this holds not always." "Deformed persons are commonly even with nature: for as nature hath done ill by them, so do they by nature, being for the most part, as the Scripture saith, void of natural affection; and so they have their revenge of nature . . . whosoever hath any thing fixed in his person, that doth induce contempt, hath also a perpetual spur in himself to rescue and deliver himself from scorn. Therefore all deformed persons are extreme bold . . . Also, it stirreth in them industry, especially of this kind;

and not extern ; and again, those which are caused by extern fortune ; as sovereignty,⁵ nobility, obscure birth, riches, want, magistracy,⁶ privateness, prosperity, adversity, constant fortune, variable fortune rising *by leaps*, *by degrees*, and the like. And therefore we see that Plautus⁷ maketh it a wonder to see an old man beneficent, *his generosity is like that of a young man*. Saint Paul concludeth that severity of discipline was to be used to the Cretans, *rebuke them sharply*, upon the disposition of their country, *the Cretans are always liars, evil beasts, slow bellies*. Sallust⁸ noteth that it is usual with kings to desire contradicories : *But for the most part the desires of sovereigns are as changeable as they are strong, and are often contradictory*. Tacitus¹⁰ observeth how rarely raising of the fortune mendeth the disposition : *alone of all the Emperors Vespasian changed for the better*. Pindarus¹¹ maketh an observation, that great and sudden fortune for the most part defeateth¹² men who cannot digest great felicity. So the Psalm¹³ sheweth it is more easy to keep a measure in the enjoying of fortune, than in the increase of fortune : *if riches increase, set not your heart upon them*. These observations and the like I deny not but are touched a little by Aristotle as in passage¹⁴ in his Rhetorics, and are handled in some scattered discourses : but they were never incorporate into moral philosophy, to which they do essentially appertain ; as the knowledge of the diversity of grounds and moulds doth to agriculture, and the know-

to watch and observe the weakness of others . . . again, in their superiors, it quencheth jealousy towards them, as persons that they think they may at pleasure despise. And it layeth their competition and emulation asleep," &c.
See also *Essay 42, of youth and age*.

⁵ See *Essay 11, of great place*; *Essay 5, of adversity*; and *Essay 40, of fortune*.

⁶ Magistracy, office, opposed to privateness, i.e. the position of a private individual.

⁷ Plautus, a Roman dramatist, died B. C. 184. The quotation is from his *Miles Gloriosus*, 3, 1, 40.

⁸ Paul's *Ep. to Titus*, i. 12—13. The quotation is from the Greek poet Epimenides.

⁹ Sallust, p. 130, n. 88. See his *History of the Jugurthine War*, ch. 113.

¹⁰ Tacitus, p. 130, n. 88. See his *History*, i. 50.

¹¹ Pindar, a Greek lyric poet, B.C. 522. See his *Olymp.* i. 88.

¹² Defeateth, ruins.

¹³ Psalm, lxii. 10. See p. 73, n. 56. *To keep a measure*, to practise moderation.

¹⁴ As in passage, p. 110, n. 35, and p. 285, n. 23. Bacon's own *Essays* and the *Spectator* may serve as examples of 'scattered discourses' on this subject.

ledge of the diversity of complexions¹⁵ and constitutions doth to the physician ; except we mean to follow the indiscretion of empirics, which minister the same medicines to all patients.

6. Another article of this knowledge is the inquiry touching the affections ; for as in medicining of the body it is in order¹⁶ first to know the divers complexions and constitutions ; secondly, the diseases ; and lastly, the cures : so in medicining of the mind, after knowledge of the divers characters of men's natures, it followeth in order to know the diseases and infirmities of the mind, which are no other than the perturbations and distempers of the affections.¹⁷ For as the ancient politiques in popular estates¹⁸ were wont to compare the people to the sea, and the orators to the winds ; because as the sea would of itself be calm and quiet, if the winds did not move and trouble it ; so the people would be peaceable and tractable, if the seditious orators did not set them in working and agitation ; so it may be fitly said, that the mind in the nature thereof¹⁹ would be temperate and stayed, if the affections, as winds, did not put it into tumult and perturbation. And here again I find strange, as before, that Aristotle should have written divers volumes of Ethics, and never handled the affections, which is the principal subject thereof ; and yet in²⁰ his Rhetorics, where they are considered but collaterally and in a second degree (as they may be moved by speech), he findeth place for them, and handleth them well for the quantity²¹ ; but where their true place is, he pretermitteth them. For it is not his disputation about pleasure and pain that can satisfy this inquiry, no more than he that should generally handle the nature of light can be said to handle the nature of colours ; for²² pleasure and pain are to the particular affections, as light is to particular colours. Better travails,²³ I suppose, had the Stoicks taken in this argument, as far as I can gather by

¹⁵ Complexions, p. 17, n. 75.

¹⁶ It is in order, i.e. the proper order of proceeding is.

¹⁷ The affections, the passions. Cp. p. 283, n. 1. Politiques, p. 7, n. 23.

¹⁸ Popular estates, republics. See Cicero, Pro Cuentio, ch. 49.

¹⁹ Thereof, viz., its own. Cp. p. 73, n. 50.

²⁰ See p. 285, n. 23.

²¹ For the quantity, considering the small space that he has allotted to the consideration of them.

²² If there were no light, there would be no colours : if there were no pleasures and pains, there would be no desires or fears.

²³ Better travails, &c. i.e. the Stoicks laboured with greater diligence. Argument, p. 266, n. 14.

that which we have at second hand. But yet it is like²⁴ it was after their manner, rather in subtlety of definitions (which in a subject of this nature are but curiosities), than in active and ample descriptions and observations. So likewise I find some particular writings of an elegant nature, touching some of the affections ; as of anger,²⁵ of comfort upon adverse accidents, of tenderness of countenance,²⁶ and other. But the poets and writers of histories are the best doctors²⁷ of this knowledge ; where we may find painted forth with great life how affections are kindled and incited ; and how pacified and refrained²⁸ ; and how again contained from act and further degree ; how they disclose themselves ; how they work ; how they vary ; how they gather and fortify²⁹ ; how they are enwrapped³⁰ one within another ; and how they do fight and encounter one with another ; and other the like particularities. Amongst the which this last is of special use in moral and civil³¹ matters ; how, I say, to set affection against affection ; and to master one by another ; even as we use to hunt beast with beast, and fly bird with bird,³² which otherwise percase we could not so easily recover : upon which foundation is erected that excellent use of *reward and punishment*, whereby civil states consist³³ : employing the predominant affections of fear and hope, for the suppressing and bridling the rest. For as in the government of states it is sometimes necessary to bridle one faction with another, so it is in the government within.

²⁴ Like, likely ; see p. 284, n. 13.

²⁵ As of anger, there are two special treatises on Anger, one by Plutarch the other by Seneca. E.

²⁶ Tenderness of countenance, extreme shyness. Ellis says that Bacon was probably thinking of Plutarch's treatise *On Shyness*.

²⁷ Doctors, used in its literal sense of teachers.

²⁸ Refrained, p. 78, n. 85. Contained, withheld.

²⁹ Fortify, gain strength.

³⁰ Enwrapped, a man may act under the combined influence of two or more passions.

³¹ Civil, p. 285, n. 23.

³² Fly bird with bird, employ one bird, such as a hawk, to chase and capture another. Percase, perchance. The word is taken from the Latin idiom.

³³ Civil states consist, political communities are held together ; cp. *Essay 15*. 'The dividing and breaking of all factions and combinations that are adverse to the state, and setting them at distance, or at least distrust among themselves, is not one of the worst remedies of sedition. For it is a desperate case, if those that hold with the proceeding of the state, be full of discord and faction, and those that are against it, be entire and united.'

7. Now come we to those points which are within our own command, and have force and operation upon the mind, to affect the will and appetite, and to alter manners³⁴: wherein they ought to have handled custom, exercise, habit, education, example, imitation, emulation, company, friends, praise, reproof, exhortation, fame, laws, books, studies: these as they have determinate use in moralities, from these the mind suffereth³⁵; and of these are such receipts³⁶ and regiments compounded and described, as may serve to recover or preserve the health and good estate³⁷ of the mind, as far as pertaineth to human medicine³⁸: of which number we will insist upon some one or two, as an example of the rest, because it were too long to prosecute all; and therefore we do resume custom and habit to speak of.

8. The opinion of Aristotle seemeth to me a negligent opinion, that of those things which consist³⁹ by nature, nothing can be changed by custom; using for example, that if a stone be thrown ten thousand times up, it will not learn to ascend; and that by often seeing or hearing, we do not learn to see or hear the better. For though this principle be true in things wherin nature is peremptory (the reason whereof we cannot now stand to discuss), yet it is otherwise in things wherein nature admitteth a latitude.⁴⁰ For he mought see that a strait glove will come more easily on with use; and that a wand will by use bend otherwise than it grew; and that by use of the voice we speak louder and stronger; and that by use of enduring

³⁴ *Manners*, character. *Wherein*, i.e. among the things which influence the mind. See Bacon's *Essays*, 27, of *Friendship*; 38, of *Nature in Men*; 39, of *Custom and Education*; 40, of *Fortune*; 50, of *Studies*; 53, of *Praise*.

³⁵ The text is probably corrupt. The meaning of the sentence is, 'These are the things which are of definite use in Ethical treatises, and it is by these that the mind is influenced.' *Suffering* is used not in the sense of 'enduring pain,' but, according to the Latin idiom, of 'being influenced.'

³⁶ See p. 325, n. 3. *Regiments*, p. 313, n. 34. This word, also, like *receipts*, is generally used in connection with medicine.

³⁷ *Estate*, p. 63, n. 88.

³⁸ *As far as pertaineth, &c.*, i.e. as far as the health of the mind can be preserved by *human* remedies. The care of men's minds belongs, in the last resort, to 'sacred divinity.' See p. 322.

³⁹ *Consist*, are fixed. See Aristotle's *Ethics*, Bk. 2, ch. 1.

⁴⁰ *Admitteth a latitude*, may be modified to a certain extent. A man's nature, for instance, may be improved within certain limits, though it cannot be radically altered. Cp. 'Nature is often hidden; sometimes overcome; seldom extinguished.' *Essay* 38; cp. Hor. Ep. i. x. 20. 'You may drive out nature with a fork, but she will always come back.'

heat or cold, we endure it the better, and the like: which latter sort have a nearer resemblance unto that subject of manners⁴¹ he handleth, than those instances which he allegeth. But allowing his conclusion, that virtues⁴² and vices consist in habit, he ought so much the more to have taught the manner of superinducing that habit; for there be many precepts of the wise ordering the exercises of the mind, as there is of ordering the exercises of the body; whereof we will recite a few.

9. The first shall be, that we beware we take not at the first, either too high a strain, or too weak⁴³; for if too high, in a diffident nature you discourage, in a confident nature you breed an opinion of facility, and so a sloth; and in all natures you breed⁴⁴ a further expectation than can hold out, and so an insatisfaction in the end: if too weak, of⁴⁵ the other side, you may not look to perform and overcome any great task.

10. Another precept is, to practise all things chiefly at two several⁴⁶ times, the one when the mind is best disposed, the other when it is worst disposed; that by the one you may gain a great step, by the other you may work out the knots and stonds⁴⁷ of the mind, and make the middle times the more easy and pleasant.

11. Another precept is, that which Aristotle⁴⁸ mentioneth by the way, which is to bear ever towards the contrary extreme of that whereunto we are by nature inclined; like unto the rowing against the stream, or making a wand straight by bending him contrary to his natural crookedness.

12. Another precept is, that the mind is brought to anything better, and with more sweetness and happiness, if that whereunto you pretend⁴⁹ be not first in the intention, but *subordinate*, because of the

⁴¹ *Manners*, p. 329, n. 34.

⁴² See p. 295, n. 87.

⁴³ Let us beware of aiming either at too much, or too little.

⁴⁴ *You breed*, &c., i.e. you make a man entertain hopes of accomplishing more than he can really accomplish. *Insatisfaction*, dissatisfaction.

⁴⁵ *Of*, p. 84, n. 43.

⁴⁶ *Several*, different. *Best disposed*, i.e. most inclined to do the thing.

⁴⁷ *Stonds*, hindrances.

⁴⁸ *Ethics*, Bk. 2, ch. 9; cp. *Essay* 38. 'Neither is the ancient rule amiss, to bend nature, as a wand, to a contrary extreme, whereby to set it right: understanding it when the contrary extreme is no vice.'

⁴⁹ *Pretend*, p. 309, n. 1. *First in the intention*, our immediate and primary object.

natural hatred of the mind against necessity and constraint. Many other axioms there are touching the managing of exercise and custom ; which being so conducted, doth prove indeed another nature ; but⁵⁰ being governed by chance, doth commonly prove but an ape of nature, and bringeth forth that which is lame and counterfeit.

13. So if we should handle books and studies, and what influence and operation they have upon manners, are there not divers precepts of great caution and direction appertaining thereunto ? Did not one of the fathers in great indignation call poesy *the wine of daemons*,⁵¹ because it increaseth temptations, perturbations, and vain opinions ? Is not the opinion of Aristotle worthy to be regarded, wherein he saith, That young men are no fit auditors of moral philosophy,⁵² because they are not settled from the boiling heat of their affections, nor attempered with time and experience ? And doth it not hereof come, that those excellent books and discourses of the ancient writers (whereby they have persuaded unto virtue most effectually, by representing her in state and majesty, and popular opinions against virtue in their parasites⁵³ coats fit to be scorned and derided), are of so little effect towards honesty of life, because they are not read and revolved⁵⁴ by men in their mature and settled years, but confined almost to boys and beginners ? But is it not true also, that much less young men are fit auditors of matters of policy,⁵⁵ till they have been

⁵⁰ Unless a man train himself in the right way, he will only induce unnatural habits ; cp. 'The Indians (I mean the sect of their wise men) lay themselves quietly upon a stack of wood, and so sacrifice themselves by fire. Nay the wives strive to be burned with the corpses of their husbands. . . . There be monks in Russia, for penance, that will sit a whole night in a vessel of water, till they be engaged with hard ice. . . . Therefore, since custom is the principal magistrate of man's life, let men, by all means, endeavour to obtain good customs.'—Essay 39.

⁵¹ The expression here quoted is made up of the saying of Augustine, that poetry is *the wine of error*, and the saying of Hieronymus, that it is *the food of demons*. E. Cp. Essay I. Fathers, p. 72, n. 42.

⁵² Aristotle said not moral, but *political philosophy*. Ethics, Bk. i., ch. 3. But see p. 285, n. 23. The reason which Aristotle gives is that a young man is not sufficiently acquainted with the subjects which the science treats of to study it with advantage.

⁵³ *Parasites*, p. 34, n. 13.

⁵⁴ *Read and revolved*, p. 39, n. 46.

⁵⁵ *Policy*, p. 136, n. 33. The two quotations which follow are from Seneca,

throughly seasoned in religion and morality ; lest their judgements be corrupted, and made apt to think that there are no true differences of things, but according to utility and fortune, as the verse describes it, *Successful crime is called virtue* ; and again, *For the same crime one man is hanged, another is crowned* : which the poets do speak satirically, and in indignation on virtue's behalf ; but books of policy do speak it seriously and positively ; for so it pleaseth Machiavel to say, *That if Cæsar had been overthrown, he would have been more odious than ever was Catiline* ; as if there had been no difference, but in fortune, between a very fury of lust and blood, and the most excellent spirit (his ambition reserved⁵⁶) of the world ? Again, is there not a caution likewise to be given of the doctrines of moralities⁵⁷ themselves (some kinds of them), lest they make men too precise, arrogant, incompatible⁵⁸ ; as Cicero saith of Cato, *His great virtues are his own, his defects come not from his nature, but from his education*. Many other axioms and advices there are touching those proprieties⁵⁹ and effects, which studies do infuse and instil into manners.⁶⁰ And so likewise is⁶¹ there touching the use of all those other points, of company, fame, laws, and the rest, which we recited in the beginning in the doctrine of morality.

14. But there is a kind of culture of the mind that seemeth yet more accurate and elaborate than the rest, and is built upon this ground ; that the minds of all men are at some times in a state more perfect, and at other times in a state more depraved. The purpose therefore of this practice⁶² is to fix and cherish the good hours of the mind, and to obliterate and take forth the evil. The fixing of the good hath been practised by two means, vows or constant resolutions, and observances or exercises ; which are not to be regarded so much in themselves, as because they keep the mind in continual obedience. The obliteration of the evil hath been practised by two means, some kind of redemption or expiation of that which is past, and an

Herc. Fur. 251, and *Juvenal*, 13, 105. The quotation from Machiavelli is from *Discorsi*. i. 10.

⁵⁶ Reserved, excepted.

⁵⁷ Moralities, treatises on moral philosophy ; cp. p. 329, n. 35.

⁵⁸ Incompatible, p. 16, n. 63.

⁵⁹ Proprieties, p. 139, n. 51.

⁶⁰ Manners, p. 329, n. 34.

⁶¹ Is, obs. the singular verb, the subject being 'many other axioms and advices.'

⁶² This practice, this method of training the mind.

inception⁶⁸ or account *afresh* for the time to come. But this part seemeth sacred and religious,⁶⁹ and justly; for all good moral philosophy (as was said) is but an handmaid to religion.

15. Wherefore we will conclude with that last point, which is of all other means the most compendious and summary, and again, the most noble and effectual to the reducing of the mind unto virtue and good estate⁷⁰; which is, the electing and propounding unto a man's self good and virtuous ends of his life, such as may be in a reasonable sort⁷¹ within his compass to attain. For if these two things be supposed, that a man set before him honest and good ends, and again that he be resolute, constant, and true unto them; it will follow that he shall mould himself into all virtue at once. And this is indeed like the work of nature; whereas the other course is like the work of the hand. For as when a carver makes an image, he shapes only that part whereupon he worketh; as if he be upon the face, that part which shall be the body is but a rude stone still, till such times as he comes to it. But contrariwise when nature makes a flower or living creature, she formeth rudiments of all the parts at one time. So in obtaining virtue by habit, while a man practiseth temperance, he doth not profit much to fortitude, nor the like: but when he dedicateth and applieth himself to good ends, look, what virtue soever the pursuit and passage towards those ends doth commend unto him, he is invested of a precedent disposition to conform himself thereunto. Which state⁷² of mind Aristotle doth excellently express himself, that it ought not to be called virtuous, but divine: his words are these: *To brutal vice it is natural to oppose that divine or heroical virtue which is above humanity: and a little after, as we cannot call brutes vicious or virtuous, so neither can we call God: the condition of God is something different from virtue, as that of brutes is from vice.* And therefore we may see what celsitude of honour Plinius Secundus attributeth to Trajan in his funeral oration⁷³; where he said, *That men needed to make no other prayers to the gods, but that they would continue as good lords to them as Trajan had been;* as if he had not

⁶⁸ *Inception*, p. 308, n. 90.

⁶⁹ *Sacred and religious*, to belong to religion; see p. 322.

⁷⁰ *Good estate*, p. 329, n. 37.

⁷¹ *In a reasonable sort*, reasonably, i.e. such as he may reasonably expect to attain.

⁷² *Which state*, i.e. with reference to which state. See his *Ethics*, Bk. vii., ch. 1.

⁷³ It was not a funeral oration, but a panegyric spoken in Trajan's presence.

been only an imitation of divine nature, but a pattern of it. But these be heathen and profane passages, having but a shadow of that divine state of mind, which religion and the holy faith⁶⁹ doth conduct men unto, by imprinting⁷⁰ upon their souls charity, which is excellently called the bond of perfection, because it comprehendeth and fasteneth all virtues together. And as it is elegantly said by Menander⁷¹ of vain love, which is but a false imitation of divine love, *Love is a better instructor than a left-handed sophist*, that love teacheth a man to carry⁷² himself better than the sophist or perceptor, which he calleth left-handed, because, with all his rules and preceptions, he cannot form a man so dexterously,⁷³ nor with that facility to prize himself and govern himself, as love can do ; so certainly, if a man's mind be truly inflamed with charity, it doth work him suddenly into greater perfection than all the doctrine⁷⁴ of morality can do, which is but a sophist in comparison of the other.⁷⁵ Nay further, as Xenophon⁷⁶ observed truly, that all other affections, though they raise the mind, yet they do it by distorting and uncomeliness of ecstasies or excesses ; but only love doth exalt the mind, and nevertheless at the same instant doth settle and compose it ; so in all other excellencies, though they advance⁷⁷ nature yet they are subject to excess. Only charity admitteth no excess.⁷⁸ For so we see, aspiring to be like God in

⁶⁹ *The holy faith*, p. 300, n. 27.

⁷⁰ *Imprinting*, p. 68, n. 23. For the meaning of *charity*, see p. 9, n. 42. It is called 'the bond of perfection' in the *Ep. to Colossians* iii. 14. *Comprehendeth*, used in its literal sense of 'holding together.'

⁷¹ *Menander*, The quotation is not from Menander, but from Anaxandrides. E. *Vain love*, sensual love.

⁷² *To carry*, to behave.

⁷³ *Dexterously*, dexterously. The construction is, 'The sophist cannot so dexterously, or so easily, form, i. e. train a man to value himself,' &c. A man who is in love, will think well of himself and strive to be well thought of ; but charity, or Christian affection for his fellow-men, will be much more effectual than love, in making him who feels it virtuous. *Sophist*, p. 123, n. 43.

⁷⁴ *Doctrine*, teaching. *Morality*, p. 283, n. 2.

⁷⁵ *The other*, viz., charity.

⁷⁶ *Xenophon*, see his *Symposium*, i. 10.

⁷⁷ *Advance*, exalt ; cp. p. 309, n. 7.

⁷⁸ *Admitteth no excess*, cannot be carried to excess. We should say 'admits ~~of~~' In illustration of Bacon's remark, the student should bear in mind Aristotle's remark, that virtue is a mean between extremes. Liberality degenerates into extravagance : bravery into rashness : resentment into malice, &c. With

power, the angels transgressed and fell; *I⁷⁰ will ascend and be like the highest*: by⁸⁰ aspiring to be like God in knowledge, man transgressed and fell; *Ye shall be as Gods, knowing good and evil*: but by aspiring to a similitude of God in goodness or love, neither man nor angel ever transgressed, or shall transgress. For unto that imitation we are called: *Love⁸¹ your enemies, do good to them that hate you, and pray for them which despitfully use you and persecute you; that ye may be the children of your Father which is in Heaven, who maketh the sun to rise on the evil and on the good, and sendeth rain on the just and on the unjust.* So in the first platform⁸² of the divine nature itself the heathen religion speaketh thus, *Best and greatest*: and the sacred scriptures thus, *His mercy is over all his works.*

16. Wherefore I do conclude this part of moral knowledge, concerning the culture and regiment of the mind; wherein if any man, considering the parts thereof which I have enumerated, do judge that my labour is but to collect into an art or science that which hath been pretermitted by others, as matter of common sense and experience, he judgeth well. But as Philocrates sported⁸³ with Demosthenes, *You may not marvel (Athenians) that Demosthenes and I do differ; for he drinketh water, and I drink wine*; and like as we read of an ancient parable of the two gates of sleep,

*Two gates the silent house of sleep adorn,
Of polished ivory this, that of transparent horn:
True visions through transparent horn arise,
Through polished ivory pass deluding lies:*

so if we put on sobriety and attention, we shall find it a sure maxim in knowledge, that the more pleasant liquor (*of wine*) is the more

regard to charity, on the other hand, it is impossible to have too much at heart 'the good of men and mankind,' p. 9, l. 28.

⁷⁰ A saying put into the mouth of Satan. *Isaiah xiv. 14.*

⁸⁰ See p. 67, n. 13. The words which follow are those with which Satan tempted Eve.

⁸¹ Quoted from a sermon by Jesus. *Matthew v. 44.*

⁸² Platform, p. 296, n. 97. The attribute of the god of the heathen was *power*: that of the God of the Christians is *compassion*.

⁸³ *Sported*, said playfully. Philocrates was a prominent man in Athens during the long negotiations that were carried on between the Athenians and Philip of Macedon.

vaporous,⁸⁴ and the braver⁸⁵ gate (*of ivory*) sendeth forth the falser dreams.

17. But we have now concluded that general part of human philosophy, which⁸⁶ contemplateth man segregate, and as he consisteth of body and spirit. Wherein we may further note, that there seemeth to be a relation or conformity between the good of the mind and the good of the body. For as⁸⁷ we divided the good of the body into health, beauty, strength, and pleasure; so the good of the mind, inquired in⁸⁸ rational and moral knowledges, tendeth to this, to make the mind sound, and without perturbation; beautiful, and graced with decency; and strong and agile for all duties of life. These three, as in the body, so in the mind, seldom meet, and commonly sever.⁸⁹ For it is easy to observe, that many have strength of wit and courage, but have neither health from perturbations, nor⁹⁰ any beauty or decency in their doings: some again have an elegancy and fineness of carriage which have neither soundness of honesty, nor substance of sufficiency⁹¹: and some again have honest and reformed minds, that can neither become themselves⁹² nor manage business: and sometimes two of them meet, and rarely all three. As for pleasure, we have likewise determined that the mind ought not to be reduced to stupid,⁹³ but to

⁸⁴ *Vaporous*, producing 'vaporous imaginations.' See p. 21, n. 5.

⁸⁵ *Braver*, more beautiful. In the *De Aug.* Bacon says more concisely, 'Those who censure me must remember what I said at first, namely, that my object is not beauty, but usefulness and truth. They must remember also the meaning of the ancient parable concerning the two gates of sleep. Great, undoubtedly, is the magnificence of the ivory gate; but it is through the gate of horn that true dreams pass.'

⁸⁶ See p. 200, l. 1, sq.

⁸⁷ See p. 206, § 1.

⁸⁸ *Inquired in*, &c., if it be considered in accordance with what we learn from reason and morals.

⁸⁹ *Sever*, are separated.

⁹⁰ For example, the Puritans were most strictly virtuous, but their morality was not attractive.

⁹¹ *Sufficiency*, ability. It is expressed more clearly in the *De Aug.* 'They are neither virtuous enough to wish, nor strong enough to be able to do right.'

⁹² *Become themselves*, act gracefully.

⁹³ *To stupid*, to a state of insensibility. In the *De Aug.* he says that 'there are some, who from a kind of stoical austerity and insensibility are virtuous, without enjoying the pleasures of virtue.' A healthy mind will find the practice of virtue pleasant.

retain pleasure; confined rather in the subject of it, than in the strength and vigour of it.

XXIII. Pp. 339—385. It is difficult to reduce 'civil knowledge' to rules, though the difficulty is modified by the fact, that a rule obeyed by one will be obeyed by all, that external goodness is all that it is necessary to secure, and that states are not easily thrown into disorder. Men form societies for companionship, profit, and protection, so that 'civil knowledge' has to consider how a man should behave in company, how he may be successful in his undertakings, and how he should be governed. With regard to behaviour, a man should be dignified, and yet courteous, natural and unaffected, not neglecting virtue in his efforts to please. His behaviour should be like his dress, unstudied, but graceful, and according to the fashion. There is no lack of good books on the subject of behaviour. Bacon regrets that there are no books

Bacon's remarks on Ethics are very suggestive. We may notice the distinction which he draws between the good of the whole and the good of the part, corresponding, as I have said, to our distinction between extra-regarding and self-regarding virtues. The analogies, by which he tries to demonstrate the superiority of the good of the whole are fanciful, but his advice to seek the 'strings of the root of good in nature' is sound, and comes home to those who believe that man, with his present mental and moral constitution, is a development of a lower natural type. We may notice also the importance of his remarks on the real nature of enjoyment. The consideration of happiness is essential to ethics, since it is universally allowed that happiness is a reasonable, if not a necessary object, to all men. We may notice, again, the importance of his remarks on conflicting obligations, on casuistry, and on 'respective duties,' and of the distinction which he draws between the voluntary and the non-voluntary. He has given a characteristically practical turn to his remarks on the force of habit, and the effect of resolutions, but they are not the less valuable, on that account. What a man *ought* to do must be something that he *can* do: but when we talk of what he can do, we mean what he can be reasonably expected to bring himself to do. With Bacon's remarks on habit and resolutions, the student may compare Butler's *Analogy*, ch. 5. Again, such a treatment of the passions, as Bacon suggests, is very necessary: without it, we can hardly determine the limits within which such feelings as benevolence and resentment may or should be indulged. See Sidgwick's *Methods of Ethics*, 3, viii. 1. Nor, lastly, should we overlook the importance of making morality both attractive to others, and pleasant to ourselves. Bacon does not consider the question of the criterion of right and wrong, or of the origin of the moral faculty. He merely says vaguely, that our duty is to be determined by reason, subordinated to the principles laid down by religion. At the same time, he seems to have thought that we have a vague instinctive perception of right and wrong; xxv. 3. Ethics, as an independent science, had not yet been constituted. Indeed, men had hardly realized the relation of Ethics to Theology as a question to be determined.

giving practical advice for succeeding in our dealings with others. The absence of such books leads men to infer, that those who write books do not possess worldly wisdom. We know that the ancient Romans used to apply their experience in giving advice of this kind: and many maxims of worldly wisdom may be drawn from the writings of Solomon. We are, in this respect, in a better position than the ancients. They had to invent fables and parables to illustrate their maxims; we can enforce ours by the evidence of histories, biographies, and letters. Again there should be books, which would teach men how to improve their own position, not to make men presumptuous, but to inspire them with confidence, and to show to the world that there is nothing, no matter how common, which learning does not embrace. Bacon gives a few precepts, to illustrate his meaning. A man must thoroughly understand those with whom he has to deal. He must be distrustful, believing rather in looks than in words, and in words wrung from a man by strong feeling, than in prepared speeches. Most men reveal secrets at some time, but a man's actions may be contrived to mislead. We may gain different kinds of information about men from their friends, their enemies, and their servants. We may judge them by their characters, or their aims; but we must be on our guard against crediting men with too much depth and wisdom. We must judge of princes by their character only, for they have all objects of desire at their command.

We should make friends with those who are well-informed on subjects which it is important for us to know. We should know when to speak, and when to be silent; when to act, and when to refrain. We should form a just estimate of our own abilities and defects, and choose the course of life for which we are best fitted, and in which we are likely to meet the least able competitors. We should be careful whom we choose for friends, and whom we imitate. We should strive to make the most of our abilities, and to make even our defects pass for advantages. We must accommodate ourselves to circumstances. We must know when to declare our intentions openly, and when to dissemble. We must know what objects to subordinate to others, how to make the best use of our time, and how to turn even a failure to advantage. Many other precepts there are of this kind. Men should remember, however, that, in seeking their own fortune, they must avoid vice, and must not, in their devotion to themselves, forget the duty which they owe to God. Those who obey God's laws will always be fortunate.

The principles of government are not to be divulged: but it behoves the governors to be fully informed as to the disposition, needs, and grievances of their subjects. It is unnecessary to dwell on this matter, since the book is dedicated to a king who is a master in the science of government. Bacon cannot, however, help expressing his regret that the laws have not been dealt with in a statesmanlike way. He wishes it to be determined how natural law should be modified to suit the requirements of a particular country, how the laws may be made certain and plain, in what form they are to be drawn up, how and by whom they are to be interpreted, and how far the letter of the law is to be modified by equity, and other points of the like kind. This is a subject which Bacon proposes to deal with himself, in a separate treatise.

The student should notice what a wide connotation Bacon gives to the term 'civil knowledge,' *i.e.* political and social science. His object, in this treatise, is to give an exhaustive catalogue of all that has been, or ought to have been treated of in books; and, as he said above, (p. 293,) he 'follows the divisions of the nature of things.' In all that they undertake men are, in some way or other, connected with and dependent on their fellow men, and, therefore, the consideration of the means of succeeding in life is naturally assigned to the science, which considers man as a member of society. Bacon's remarks are interesting, chiefly, as illustrating his own knowledge of human character, and the variety and depth of his experience. His Essays are the best commentary on his remarks.

XXIII. i. CIVIL knowledge⁹⁴ is conversant about a subject which of all others is most immersed in matter,⁹⁵ and hardliest reduced to axiom. Nevertheless, as Cato the Censor said, *That the Romans were like sheep, for that⁹⁶ a man were better drive a flock of them, than one of them; for in a flock if you could get but some few go⁹⁷ right, the rest would follow:* so in that respect moral philosophy is more difficult than policy. Again, moral philosophy propoundeth to itself the framing of internal goodness; but⁹⁸ civil knowledge requireth only an external goodness; for that as to society sufficeth. And therefore it cometh oft to pass that there be evil times in good governments: for so we find in the holy story,⁹⁹ when the kings were good, yet it is added, *But as yet the people had not turned their hearts towards the Lord God of their fathers.* Again, states, as great engines, move slowly, and are not so soon put out of frame¹: for as in Egypt the seven good years sustained the seven bad, so governments for a time well grounded²

⁹⁴ Civil knowledge, *i.e.* human philosophy congregate and civil.' P. 200, l. 4.
See p. 111, n. 40. *Conversant*, p. 284, n. 8.

⁹⁵ Immersed in matter, p. 275, n. 62. *Axiom*, general principles; cp. p. 122, n. 31.

⁹⁶ For that, because. *Were better drive*, would find it easier to drive.

⁹⁷ Go, to go.

⁹⁸ Cp. Kant, "Politics considers only the *legality* of actions, Ethics considers the *morality* of them."

⁹⁹ Story, p. 119, n. 7. See 2 *Chronicles* xx. 33.

¹ Out of frame, out of order. In the following sentence Bacon refers to a story told in the Jewish scriptures, that the Egyptians during seven good years were enabled to lay up provisions against a famine, of the approach of which they had been warned.

² Well grounded, resting on a sound basis. Bear out, make up for, *i.e.* prevent any evil consequences following from.

do bear out errors following ; but the resolution of particular persons is more suddenly subverted. These respects⁸ do somewhat qualify the extreme difficulty of civil knowledge.

2. This knowledge hath three parts, according to the three summary actions of society ; which are conversation,⁹ negotiation, and government. For man seeketh in society comfort,¹⁰ use, and protection : and they be three wisdoms of divers natures, which do often sever¹¹ : wisdom of the behaviour, wisdom of business, and wisdom of state.

3. The⁷ wisdom of conversation ought not to be over much affected, but much less despised ; for it hath not only an honour in itself, but an influence also into⁸ business and government. The poet saith, *Do not undo your words by your looks* ; a man may destroy the force of his words with his countenance : so may he of his deeds, saith Cicero, recommending to his brother affability and easy access ; *It is of no use to have an open door, and a shut countenance* ; it is nothing won to admit men with an open door, and to receive them with a shut and reserved countenance. So we see Atticus,⁹ before the first interview between Cæsar and Cicero, the war depending, did seriously advise Cicero touching the composing and ordering of his countenance and gesture. And if the government of the countenance be of such effect, much more is that of the speech, and other carriage¹⁰ appertaining to conversation ; the true model whereof seemeth to me well expressed by Livy,¹¹ though not meant for this purpose : *That I may not appear to be either arrogant or servile ; the arrogant man is unmindful of other's liberty, the servile man of his own* : the sum of behaviour is to retain a man's own dignity, without intruding upon the liberty of others. On the other side, if behaviour

⁸ *Respects*, considerations.

⁹ *Conversation*, society ; a sense which the word bears in Latin.

¹⁰ He explains this in the *De. Aug.* to mean ‘comfort against solitude, assistance in business, and protection from injuries.’

¹¹ *Seru*, p. 336, n. 89.

⁷ With this section cp. *Essay 52* ‘of Ceremonies and Respects.’

⁸ *Into*, in. ‘Graceful behaviour will help a man to attain his ends whether in private or public matters.’—*De. Aug.* The quotation, which follows, is from Ovid, *De. Art. Am.* 2, 312.

⁹ *Atticus*, a friend of Cicero. See *Ep. ad. Att.* ix. 12. The war alluded to was between Cæsar and Pompey. *Depending*, impending.

¹⁰ *Carriage*, behaviour.

¹¹ *Livy*, Bk. 23, ch. 12.

and outward carriage be intended¹² too much, first it may pass into affectation, and then *What is more unseemly than to carry the stage into real life*, to act a man's life? But although it proceed not to that extreme, yet it consumeth time, and employeth the mind too much. And therefore as we use¹³ to advise young students from company keeping, by saying, *Friends are thieves of time*: so certainly the intending of the discretion of behaviour is a great thief of meditation. Again, such as are accomplished in that form of urbanity please themselves in it,¹⁴ and seldom aspire to higher virtue; whereas those that have defect in it do seek comeliness by reputation; for where reputation is, almost everything becometh; but where that is not, it must be supplied by *punctos* and compliments. Again, there is no greater impediment of action than an over-curious¹⁵ observance of decency, and the guide of decency, which is time and season.¹⁶ For as Salomon saith, *He who looketh to the winds doth not sow, and he that regardeth the clouds shall not reap*: a man must make his opportunity, as oft as find it. To conclude, behaviour seemeth to me as a garment of the mind, and to have the conditions of a garment. For it ought to be made in fashion; it ought not to be too curious; it ought to be shaped so as to set forth any good making of the mind and hide any deformity; and above all, it ought not to be too strait or restrained for exercise or motion. But this part of civil knowledge hath been elegantly handled, and therefore I cannot report it for deficient.

4. The¹⁷ wisdom touching negotiation or business hath not been hitherto collected into writing, to the great derogation of learning, and the professors of learning. For from

Of business.

¹² Intended, p. 208, n. 41; cp. below, l. 7,

¹³ Use, p. 59, n. 70.

¹⁴ Please themselves in it, are contented with it. 'Some men's behaviour is like a verse, wherein every syllable is measured. How can a man comprehend great matters, that breaketh his mind too much to small observations?'—*Essay 52.*

¹⁵ Over-curious, too careful and studied; cp. below l. 19,

¹⁶ Time and season, i.e., as he explains in the *De Aug.*, 'an over anxiety in the choice of times and seasons.' A man must not be so punctilious as to let favorable opportunities pass; cp. 'It is a loss also in business to be too full of respects, or to be too curious in observing times and opportunities. A wise man will make more opportunities than he finds. Men's behaviour should be like their apparel, not too strait, or point device (studied), but free for exercise or motion.' For the quotation which follows, see *Ecclesiast.* xii. 4.

¹⁷ With this and the following sections, cp. *Essay 47*, 'of Negotiating.'

this root springeth chiefly that note or opinion, which by us is expressed in adage to this effect, that there is no great concurrence between learning and wisdom. For of the three wisdoms which we have set down to pertain to civil life, for¹⁸ wisdom of behaviour, it is by learned men for the most part despised, as an inferior to virtue and an enemy to meditation ; for wisdom of government, they¹⁹ acquit themselves well when they are called to it, but that happeneth to few ; but for the wisdom of business, wherein man's life is most conversant, there be no books of it, except some few scattered advertisements,²⁰ that have no proportion to the magnitude of this subject. For if books were written of this as the other,²¹ I doubt not but learned men with mean experience, would far excel men of long experience without learning, and outshoot²² them in their own bow.

5. Neither needeth it at all to be doubted,²³ that this knowledge should be so variable as it falleth not under precept ; for it is much less infinite than science of government, which we see is laboured and in some part reduced.²⁴ Of this wisdom it seemeth some of the ancient Romans in the saddest²⁵ and wisest times were professors ; for Cicero reporteth, that it was then in use for senators that had name and opinion for²⁶ general wise men, as Coruncanus, Curius, Lælius, and many others, to walk at certain hours in the Place,²⁷ and to give audience to those that would use their advice ; and that the particular citizens would resort unto them, and consult with them of the marriage of a daughter, or of the employing of a son, or of a purchase or bargain, or of an accusation, and every other occasion incident to man's life. So as there is a wisdom of counsel and advice

¹⁸ For, with regard to. See Bk. I, 3, §§ 1—10.

¹⁹ Cp. pp. 17—20, § 3.

²⁰ Advertisements, precepts. This part of the 'wisdom touching negotiation' is, in the *De Aug.*, called the *doctrine concerning scattered occasions*. 'It comprises all variety of business, and is, as it were, the secretary for the whole department of life.'

²¹ The other, i.e. the others, viz., wisdom of behaviour, and of government. Mean, moderate.

²² Outshoot them, &c., i.e. surpass them in their own subject.

²³ Doubted, p. 22, n. 15.

²⁴ Reduced, viz., to precepts.

²⁵ Saddest, most serious, or important.

²⁶ Had name and opinion for, had the reputation of being.

²⁷ Place, the forum in Rome.

even in private causes,²⁸ arising out of an universal insight into the affairs of the world; which²⁹ is used indeed upon particular cases propounded, but is gathered by general observation of cases of like nature. For so we see in the book which Q. Cicero writeth to his brother, *of canvassing for the Consulship*, (being³⁰ the only book of business that I know written by the ancients), although it concerned a particular action then on foot, yet the substance thereof consisteth of many wise and politic axioms, which contain not a temporary, but a perpetual direction in the case of popular elections. But chiefly we may see in those aphorisms which have place amongst divine writings, composed by Salomon the king, of whom the scriptures testify that his³¹ heart was as the sands of the sea, encompassing the world and all worldly matters, we see, I say, not a few profound and excellent cautions, precepts, positions,³² extending to much variety of occasions; whereupon we will stay³³ a while, offering to consideration some number of examples.

Listen³⁴ not unto all words that are spoken, lest thou hear thy servant curse thee. Here is commended the provident stay of inquiry of that which we would be loth to find: as it was judged great wisdom in Pompeius Magnus that he burned Sertorius' papers unperused.

A³⁵ wise man if he contendeth with a foolish man, whether he rage or laugh, shall find no rest. Here is described the great disadvantage which a wise man hath in undertaking a lighter person than himself,

²⁸ Even in private causes, for 'counsel in public causes,' see *Essay 20*.

²⁹ A man uses his wisdom in the particular cases in which his advice is asked: but the wisdom itself is the result of induction.

³⁰ Frontinus' tract on *Aqueducts* belongs to the same class. Its chief object is to give an account of the regulations affecting the Roman aqueducts and of the frauds, which, on his appointment as *curator* of them, his examination of various places enabled him to detect. E.

³¹ See p. 3, n. 7. *Encompassing*, embracing.

³² *Positions*, judgements.

³³ *Stay*, dwell.

³⁴ *Eccles. vii. 21. Provident stay of inquiry*, a prudent refusal to inquire. 'We should not try to discover things which, if discovered, will annoy us, without benefiting us. Besides causing annoyance to ourselves, such discoveries make us suspicious of others, and bring upon us the suspicions and enmity of others.'—*De. Aug. Sertorius*, a Roman general, belonging to the democratic party in Rome, who tried to establish himself as an independent ruler in Spain.

³⁵ *Prov. xxix. 9. Undertaking*, contending with. *Lighter*, less worthy.

which is such⁸⁶ an engagement as, whether a man turn the matter to jest, or turn it to heat,⁸⁷ or howsoever he change copy, he can no ways quit himself well of it.

He⁸⁸ that delicately bringeth up a servant from a child shall find him insolent at the last. Here is signified, that if a man begin too high a pitch in his favours, it doth commonly end in unkindness and unthankfulness.

Seest⁸⁹ thou a man that is quick in his business? He shall stand before kings: he shall not be among mean men. Here is observed, that of all virtues for rising to honour, quickness of despatch is the best; for superiors many times love not to have those they employ too deep or too sufficient, but ready and diligent.

I⁹⁰ saw all the living which walk under the sun, with the second child that shall stand up in his stead. Here is expressed that which was noted by Sylla first, and after him by Tiberius; *There are more who adore the rising sun than the sun setting or at midday.*

⁸⁶ Which is such, &c. i.e. for in an encounter with one, who is not our equal, it will happen, that whether a man, &c.

⁸⁷ Heat, anger. *Howsoever he may change copy,* whichever way he may turn.

⁸⁸ *Prov. xxix. 21.* ‘Sudden promotion begets insolence; continual obtaining of desires begets impatience of refusal; and if there be nothing further to aspire to, there will be an absence of alacrity and industry.’—*De Aug.*

⁸⁹ *Prov. xxii. 29;* cp. *Essay 25* of *Despatch.* ‘Men of deep wisdom are objects of jealousy to kings; popular men are disliked as standing in the way of kings; men of honour and integrity are considered unmanageable and not pliant enough. There is no other virtue which does not present some shadow of offence to the minds of kings. Expedition in the execution of their commands is the only one which contains nothing that is not acceptable.’—*De Aug.*

⁹⁰ *Eccles iv. 15.* ‘This proverb remarks upon the vanity of men, who are wont to crowd around the heirs of princes, hoping that in due time their attentions will be rewarded. Princes do not much care for their attentions, but rather scorn the fickleness of mankind.’—*De Aug.* *The sun or setting sun* is, of course, the reigning monarch, and *the second child or rising sun* his heir. Cp. Bacon’s advice to Villiers. ‘You serve a gracious master and a good, and there is a noble and a hopeful prince, whom you must not disserve. Adore not him as the rising sun in such a measure that you put a jealousy into the father who raised you; nor out of the confidence you have in the father’s affections, make not yourself suspected of the son. Keep an equal and a fit distance, so may you be serviceable to both, and deservedly be in the favour of both.’

If⁴¹ the spirit of the ruler rise up against thee, leave not thy place; for observance will obtain pardon for great offences. Here caution is given, that upon displeasure, retiring is of all courses the unfittest; for a man leaveth things at worst, and depriveth himself of means to make them better.

There⁴² was a little city, and few men within it, and there came a great king against it, and besieged it, and built great bulwarks against it; now there was found in it a poor wise man, and he by his wisdom delivered the city; yet no man remembered that same poor man. Here the corruption of states is set forth, that esteem not virtue or merit longer than they have use of it.

A⁴³ soft answer defeateth wrath. Here is noted that silence or rough answer exasperateth; but an answer present and temperate pacifieth.

The⁴⁴ way of the slothful is as an hedge of thorns. Here is lively represented how laborious sloth proveth in the end: for when things are deferred till the last instant, and nothing prepared beforehand, every step findeth a brier or impediment, which catcheth or stoppeth.

Better⁴⁵ is the end of a speech than the beginning thereof. Here is

⁴¹ *Eccles.* x. 4. "A man who has incurred the anger of his sovereign should not resign his place, but rather try to appease his sovereign in every possible way. Retirement will make his disgrace public, and will stimulate the hostility of his enemies; it shows a sullen spirit and, therefore, will aggravate the sovereign's displeasure. A seemly sense of the sovereign's displeasure will go far to alleviate it, especially if there be added to it willing offers of services, apologies for offences, and the mediation of friends."—*De Aug.*

⁴² *Eccles.* ix. 14—15. "The neglect of men, when there is no longer need of their services, is due not only to the ingratitude of the multitude, but also to the envy of the nobles, who are secretly displeased with a success which was not brought about by themselves. Therefore they depreciate both the merit of the action, and the author."—*De Aug.*

⁴³ *Prov.* xv. 1. "A sullen and obstinate silence shows either that you are guilty, or that you think that your defence will not be heard impartially. If you ask time to prepare your defence, it will be inferred that you have to invent an excuse. A temperate answer will appease your accuser."—*De Aug. Present*, p. 142, n. 76.

⁴⁴ *Prov.* xv. 19. For *catcheth*, see p. 305, n. 75.

⁴⁵ *Eccles.* vii. 8. "The conclusion of a speech is more material than the introduction, for the impression which men carry away of a speech depends very much on the end of it. I knew two wise councillors who made it a practice, when conferring with their sovereign on matters of state, not to end their discourse with remarks on the business itself, but to divert the sovereign

taxed the vanity of formal speakers, that study more about prefaces and inducements, than upon the conclusions and issues of speech.

The⁴⁵ judge who respecteth persons is not good: for even for a piece of bread he will depart from the truth. Here is noted, that a judge were better be a briber than a respecter of persons; for a corrupt judge offendeth not so lightly as a facile.

A⁴⁶ poor man that beareth witness against the poor is like a sweeping rain which leaveth no food. Here is expressed the extremity of necessitous extortions, figured in the ancient fable of the full and the hungry horseleech.

A⁴⁸ righteous man falling down before the wicked is as a troubled fountain and a corrupt spring. Here is noted, that one judicial and exemplar iniquity in the face of the world doth trouble the fountains of justice more than many particular injuries passed over by connivance.

Whoso⁴⁹ robbeth his father and his mother, and saith it is no transgression, is the companion of a destroyer. Here is noted, that whereas men in wronging their best friends use to extenuate their fault, as if they mought presume or be bold upon them, it doth contrariwise indeed aggravate their fault, and turneth it from injury to impiety.

with some jest or agreeable news, and so end by washing off (as the proverb has it) their salt water discourses with fresh. Nor was this the least valuable of their acts."—*De Aug.*

Taxed, p. 88, n. 74. *Inducements*, introductions.

⁴⁶ *Prov. xxviii. 21*; cp. "As for facility, it is worse than bribery. For bribes come but now and then. But if importunity or idle respects lead a man, he shall never be without."—*Essay II. A briber, receiver of bribes. Lightly, easily. Facile*, easily moved.

⁴⁷ *Prov. xxviii. 3.* "The oppression of a poor man is far more severe than that of a rich one, for the former practices all the arts of exaction, and searches every corner for money. Therefore neither governors, nor any of the servants of governors, should be men who are pressed for money."—*De Aug.*

⁴⁸ *Prov. xxv. 26.* "An unjust judgement in a conspicuous case is above all things to be avoided, especially if it involves not the acquittal of the guilty, but the condemnation of the innocent. A few crimes may be overlooked without serious consequences, but the judgement-seat must not take the part of injustice."—*De Aug.*; cp. *Essay 56*.

Exemplar, conspicuous; cp. p. 129, n. 79. *Injuries*, used in its literal sense of breaches of law.'

⁴⁹ *Prov. xxviii. 24.* *Use*, p. 59, n. 70. *Impiety*, obs. that the literal meaning of this word is 'a want of natural affection.'

Make^{so} no friendship with an angry man, nor go with a furious man. Here caution is given, that in the election of our friends we do principally avoid those which are impatient, as those that will espouse us to many factions and quarrels.

Hest that troubleth his own house shall inherit the wind. Here is noted, that in domestical separations and breaches men do promise to themselves quieting of their mind and contentment; but still they are deceived of their expectation, and it turneth to wind.

A^{ss} wise son maketh a glad father, but a foolish son is the heaviness of his mother. Here is distinguished, that fathers have most comfort of the good proof of their sons; but mothers have most discomfort of their ill proof, because women have little discerning of virtue but of fortune.

H^{as} that covereth a transgression seeketh love, but he that repeateth a matter separateth very friends. Here caution is given, that reconcilement is better managed by an amnesty, and passing over that which is past, than by apologies and excusations.

In^{ss} every good work there shall be abundance, but the talk of the

^{so} Prov. xxii. 24. *Espouse us to*, make us parties to.

st Prov. xi. 29. "Disturbers of their family often experience ingratitude from those whom, to the neglect of others, they adopt, and they also draw upon themselves evil reports. Both these evils are expressed by the 'inheritance of the winds'; for both the disappointment of expectation and the raising of rumours are not unaptly compared to winds."—*De Aug.*

^{ss} Prov. x. 1. "The father takes more pleasure than the mother in a wise and prudent son, because he understands better the value of virtue. But when the son does not turn out well, the mother is more grieved than the father, partly because of her greater tenderness, partly because she thinks that her own indulgence may have spoilt the boy."—*De Aug.*

Ellis remarks that the allusion to fortune, which is irrelevant, is omitted in the *De Aug.* The passage in the *De Aug.* may be taken to represent Bacon's opinion. *Of the good proof*, i.e. on their turning out well.

^{ss} Prov. xvii. 9. "There are two ways of making peace and reconciling differences; the one begins with an amnesty, the other with a recital of injuries, combined with apologies and excuses. The latter has these disadvantages; it is like chafing a wound; it creates the risk of a new quarrel (for the parties will never agree as to the proportion of injuries on either side); and, lastly, it brings it to a matter of apologies; whereas either party would rather be thought to have forgiven an injury, than to have accepted an excuse."—*De Aug.* Cp. the proverb, 'Least said, soonest mended.' Obs. that *amnesty* is used in its literal sense of 'forgetfulness of the past.'

^{ss} Prov. xiv. 23. "Here the work of the hand is distinguished from that of the tongue. It generally happens that those who talk most, boast most, and

lips tendeth only to penury. Here is noted, that words and discourse aboundeth most where there is idleness and want.

He⁵⁵ that is first in his own cause seemeth just ; but the other side cometh and searcheth him. Here is observed, that in all causes the first tale possesseth much ; in sort, that the prejudice thereby wrought will be hardly removed, except some abuse or falsity in the information be detected.

The⁵⁶ words of a deceitful man seem artless, and they go down into the innermost parts of the belly. Here is distinguished, that flattery and insinuation, which seemeth set and artificial, sinketh not far ; but that entereth deep which hath show of nature, liberty, and simplicity.

He⁵⁷ that reproveth a scorner getteth to himself shame ; and he that rebuketh a wicked man getteth himself a blot. Here caution is given how we tender reprobation to arrogant and scornful natures, whose manner is to esteem it for contumely, and accordingly to return it.

Give⁵⁸ opportunity to a wise man, and he will be yet wiser. Here is distinguished the wisdom brought into habit, and that which is but verbal and swimming only in conceit ; for the one upon the occasion

promise most, are needy persons, who make no profit of the things whereof they discourse. Such people, too, are generally idle."—*De Aug.*

⁵⁵ *Prov. xviii. 17.* "In every cause the first information, if it have dwelt for a time in the judge's mind, takes deep root, and colours, and takes possession of it ; insomuch that it will hardly be washed out, unless either some manifest falsehood be detected in the matter of the information, or some deceit in the statement thereof."—*De Aug.* *In sort that*, in such a way that. *Abuse*, *deception*. Cp. p. 251, n. 12.

⁵⁶ *Prov. xviii. 8.* *Set*, deliberate, premeditated.

⁵⁷ *Prov. ix. 7.* "When a man instructs a scorner, in the first place, he loses his time ; and secondly, the attempt is laughed at by others, as labour misapplied ; and lastly, the scorner himself despises the knowledge that he has received. But there is greater danger in reproving the wicked, for not only does a wicked man not listen to advice, but he turns on his reprobation, whom, being now made odious to him, he either directly assails with abuse, or afterwards traduces to others."—*De Aug.*

⁵⁸ *Prov. ix. 9.* "The really wise man will take advantage of opportunities to increase his wisdom, but the man who merely pretends to be, or fancies that he is, wise, is amazed and confused, when an emergency occurs, to such an extent, that he even begins to doubt his own wisdom."—*De Aug.*

Which is but verbal, which a man merely says that he possesses. *Swimming in conceit*, which a man merely fancies that he possesses. *Amazed*, equivalent to *confused*. This use of the word will be familiar to students of Milton.

presented is quickened and redoubled, the other is amazed and confused.

As⁵⁹ in water face answereth to face; so the hearts of men are manifest to the wise. Here the mind of a wise man is compared to a glass, wherein the images of all diversity of natures and customs are represented; from which representation proceedeth that application,

The wise man will adapt himself to any character.

7. Thus have I stayed⁶⁰ somewhat longer upon these sentences politic⁶¹ of Salomon than is agreeable to the proportion of an example; led with a desire to give authority to this part of knowledge, which I noted as deficient, by so excellent a precedent; and have also attended them with brief observations, such as to my understanding offer no violence to the sense, though I know they may be applied to a more divine use: but it is allowed, even in divinity,⁶² that some interpretations, yea, and some writings, have more of the eagle⁶³ than others; but taking them as instructions for life, they mought have received large discourse, if I would have broken them and illustrated them by deducements⁶⁴ and examples.

8. Neither was this⁶⁵ in use only with the Hebrews, but it is generally to be found in the wisdom of the more ancient times; that as men found out any observation that they thought was good for life, they would gather it and express it in parable or aphorism or fable. But for fables, they were vicegerents⁶⁶ and supplies where examples failed: now that the times abound with history, the aim is better when

⁵⁹ *Prov. xxvii. 19. Application, adaptation, or accommodation;* cp. p. 32, n. 87.

⁶⁰ *Stayed,* p. 343, n. 33.

⁶¹ *Politic,* p. 286, n. 26.

⁶² *Divinity,* p. 302, n. 50.

⁶³ *Have more of the eagle,* In Mr. Ellis's copy of Montagu's Ed. of Bacon, I find the following MS. note 'More of the eagle—that is more of a mystical and recondite character. The allusion is to the eagle, as the symbol of S. John, and to the character of his gospel. As is known, the four beasts in Ezechiel are taken by S. Jerome to typify the four Evangelists.' W. I think that the phrase means simply—'are more remote from human life and affairs.' Cp. the metaphor of the lark and the hawk in § 13.

⁶⁴ *Deducements, deductions, inferences.*

⁶⁵ *This, viz., the habit of expressing practical maxims in aphorism or parable.* With what follows, cp. pp. 145—6, § 3.

⁶⁶ *Vicegerents, substitutes. Supplies, supplements;* cp. *supply*, p. 350, l. 12.

the mark is alive.⁶⁷ And therefore the form of writing which of all others is fittest for this variable argument of negotiation and occasions is that which Machiavel chose wisely and aptly for government; namely, discourse upon histories or examples. For knowledge drawn freshly and in our view out of particulars, knoweth the way best to particulars again.⁶⁸ And it hath much greater life for practice⁶⁹ when the discourse attendeth upon the example, than when the example attendeth upon⁷⁰ the discourse. For this is no point of order, as it seemeth at first, but of substance. For when the example is the ground,⁷¹ being set down in an history at large, it is set down with all circumstances, which may sometimes control⁷² the discourse thereupon made, and sometimes supply it, as a very pattern for action⁷³; whereas the examples alleged for the discourse's sake are cited succinctly, and without particularity, and carry a servile aspect⁷⁴ towards the discourse which they are brought in to make good.

9. But this difference is not amiss to be remembered, that as history of times is the best ground⁷⁵ for discourse of government, such as Machiavel handleth, so histories of lives is the most proper for discourse of business, because it is more conversant⁷⁶ in private actions. Nay, there is a ground of discourse for this purpose⁷⁷ fitter than them both, which is discourse upon letters, such as are wise and weighty, as many are of Cicero to Atticus, and others. For letters

⁶⁷ *The aim is better when the mark is alive,* It is a better plan to take a real person, or an actual event, to illustrate a maxim. With what follows, cp. p. 136, § 12.

⁶⁸ *Knoweth the way best to particulars again,* is most easily applied to fresh cases.

⁶⁹ *Hath much greater life for practice,* is much more useful for practical guidance.

⁷⁰ *Attendeth upon,* is subordinate to.

⁷¹ *The ground, i.e. the basis of the discourse.*

⁷² *Control, correct.*

⁷³ *As a very pattern for action,* so that it becomes a perfect pattern for us to imitate in practice.

⁷⁴ *Carry a servile aspect, &c.,* Seem to be the slaves of the discourse. Bacon means to say, that it is better to base a rule upon an actual event, than to invent a story to support a rule. In the one case the evidence for the rule is manifest: in the other case, the rule has no authority, being supported only by a fiction invented purposely to support it.

⁷⁵ *Ground,* see n. 71.

⁷⁶ *Conversant in,* p. 284, n. 8.

⁷⁷ *For this purpose, viz., for giving practical advice;* cp. p. 142, § 4.

have a great and more particular representation of business than either chronicles⁷⁸ or lives. Thus have we spoken both of the matter and form of this part of civil knowledge, touching negotiation, which we note to be deficient.

10. But yet there is another part of this part, which differeth as much from that whereof we have spoken as *wisdom* and *wisdom for a man's self*, the one moving as it were to the circumference,⁷⁹ the other to the centre. For there is a wisdom of counsel, and again there is a wisdom of pressing a man's own fortune; and they do sometimes meet, and often sever.⁸⁰ For many are wise in their own ways that are weak for government or counsels; like ants, which is a wise creature for itself, but very hurtful for the garden. This wisdom the Romans did take much knowledge of: *The⁸¹ wise man*

⁷⁸ *Chronicles*, p. 128, § 5.

⁷⁹ To the circumference, to those about us. The centre, one's self. The object of 'wisdom of negotiating' is to enable a man to give good advice to others. The object of 'wisdom for a man self' is to enable him to succeed himself.

⁸⁰ *Sever*, p. 336, n. 89.

⁸¹ Plautus' *Trinummus*, 2, 2, 84. Appius Claudius is said have been the author of the sentence which follows. For the last quotation, see Livy 39, 40. With what follows the student should compare *Essay 23*, 'of Wisdom for a man's self,' and his remarks on morigeration, pp. 35—6, § 10. The subject of wisdom for a man's self engrossed much of Bacon's attention. It is impossible to read his life without seeing how much he himself owed to his great knowledge of the world, his tact, and the advantages, which he possessed, of courtesy and address. It is worth considering how far the use which he himself made of these advantages, and the advice which he gave to others touching the necessity of acquiring them were strictly moral. It appears from Bacon's private memoranda that he devoted the 25th July 1608 "to the setting down of every thing he could think of for the husbanding of his income, the improvement of his fortunes, and the arrangement of his business; how to have command of ready money when he wanted it; *how to maintain and increase his credit with the king and the Earl of Salisbury* (now Lord Treasurer) *by acceptable service*; what subjects to attend to, what advices to offer, what cases to be prepared in; what suits to move for himself, and how to give evidence of his superiority to competitors in diligence, zeal, and capacity; *how to improve his personal acquaintance with the king and the great councillors*, and especially how to make himself useful and agreeable to Salisbury; what arrangements to make for the better administration of his new office &c., &c." Elsewhere in his private memoranda, we find "remembrances of points to be observed in his course of official service, with a view not only to get the work effectually done, but to make it show to the best advantage, and recommend him personally to favor and advancement." See Spedding's *Francis Bacon and his*

makes his own fortune, (saith the comical poet); and it grew to an adage, *Every one may make his own fortune*: and Livy

Times, Vol 1, p. 530, sq. In connection with the subject, the student may also read, *Essay 6, 'of Simulation and Dissimulation'* and *22, of Cunning*. Spedding remarks that most of the little acts of social intercourse, which are generally practised and approved, are, in fact, modes of concealing truth or conveying falsehood, though they are never called by their true names. The apparent immorality in Bacon springs from his giving them their real names. If, therefore, we are to make a just comparison between Bacon's morality and other men's or our own, we must do one of two things. We must either look only at the outward face of *his* actions, without reference to the true names which he gave them in his note-book, or we must supply the true names of our own, and not look at the outward face only. This does not appear to me to be quite a satisfactory answer. It is true that we all of us, at some time or other, use certain forms and ceremonies deceitfully; but we use them, because good breeding requires them, not with intent to deceive. Nor, in the majority of cases, are those, towards whom they are practised, deceived by them. The point at issue is, whether it is moral to sit down deliberately, as Bacon did, and calculate the manner in which we may reap the greatest advantage from the practice of the little artifices and deceits which social intercourse allows. And here, as Bacon would say, 'we must warily distinguish' two questions—firstly, whether Bacon did or advised any thing which he or his contemporaries would think wrong: and secondly, how far his teaching and example may be safely followed. In the first place we must remember, that, when a government is despotic, the arts of flattery and deception will, of necessity, be practised. Under such a king as James, it was impossible for a man to get a hearing, much less to obtain a position in which he could actively promote his country's good, without ingratiating himself with those in power. I distrust the courtly phrases and compliments which abound in Bacon's letters to the great, but I regard them as artifices to which he was, in a manner, driven. He himself says, that, while pressing our own fortune, we must keep within the limits of duty. Bacon, certainly, sounded the very depths of humility and subservience, specially in his intercourse with Villiers, and his conduct can only be justified on the ground that only by subservience could he attain to a position which would enable him to render those services, which he felt conscious of being able to render to his country. I do not think that anything, which Bacon either said or did, was calculated to create an opinion of his insincerity. No man was more anxious than Bacon to stand well with his fellow-men, or knew better how to gain their good opinions. But, on the other hand, a rule may be generally pernicious, even though there may be individuals who may guide themselves by it with impunity. Harmless artifices to please may degenerate into immoral artifices to deceive. What is, at first, a legitimate and innocent ambition may become a settled habit of accommodating our conduct to our interest, and I fear that there are many, who will admire Bacon's shrewdness, and adopt his maxims, without heeding

attributed it to Cato the first, *He had such force of mind and character that, wherever he had been born, he would have made himself a fortune.*

II. This conceit or position,⁸² if it be too much declared and professed, hath been thought a thing impolitic⁸³ and unlucky, as was observed in Timotheus⁸⁴ the Athenian, who, having done many great services to the estate⁸⁵ in his government,⁸⁶ and giving an account thereof to the people as the manner was, did conclude every particular with this clause, *And in this fortune had no part.* And it came so to pass, that he never prospered in any thing he took in hand afterward. For this is too high and too arrogant, savouring of that which Ezekiel⁸⁷ saith of Pharaoh, *Thou sayest the river is mine, and I made myself:* or of that which another prophet speaketh, that men offer sacrifices to their nets and snares⁸⁸; and that which the poet expresseth,

My right hand and my spear are my God.

For these confidences were ever unhallowed, and unblessed: and therefore those that were great politiques indeed ever ascribed their successes to their felicity, and not to their skill or virtue. For so Sylla surnamed himself *Felix* the Fortunate, not *Magnus* the Great. So

the admonition that accompanies them. Bacon would have been the first to deprecate such an abuse of his precepts; it is possible that, under different circumstances, his conduct and teaching might have been different. Nothing, I imagine, can be further from the truth than to represent Bacon as a man whose deliberate object it was to inculcate a selfish and unscrupulous cunning.

⁸² *Position, opinion;* cp. p. 227, n. 65.

⁸³ *Impolitic, unwise.* Obs. the history of the word, it means ‘unbefitting a man considered as a member of society;’ ‘*politic*’ being, as I have already noticed, the Greek equivalent of ‘*civil*.’

⁸⁴ *Timotheus*, an Athenian who took a prominent part in organizing an alliance between Athens and Thebes against Sparta, B.C. 378.

⁸⁵ *Estate*, p. 19, n. 89.

⁸⁶ *His government, i.e. his administration of the state.*

⁸⁷ *Ezek. xxix. 3.* Pharaoh, in his pride, refused to acknowledge that it was God to whom he was indebted for the blessings which the river Nile bestows on Egypt.

⁸⁸ “They sacrifice unto their net and burn incense unto their drag, because by them their portion is fat, and their meat plenteous.”—*Habakkuk* i. 16. Men attribute all their success to their own skill and inventions. The quotation which follows is from Virgil, *Aen.* x. 773. The words are put into the mouth of Mezentius, who is called ‘the despiser of the gods.’

Caesar said to the master of the ship, *You carry Caesar and his fortunes.*⁸⁹

12. But yet nevertheless these positions, *Every one may make his own fortune : the wise man will command the stars : every road is open to virtue*, and the like, being taken and used as spurs to industry, and not as stirrups⁹⁰ to insolency, rather for resolution than for the presumption or outward declaration, have been ever thought sound and good ; and are no question⁹¹ imprinted in the greatest minds, who are so sensible of this opinion, as they can scarce contain it within.⁹² As we see in Augustus Cæsar (who was rather diverse from his uncle⁹³ than inferior in virtue), how when he died he desired his friends about him to give him an *applause*, as if he were conscient⁹⁴ to himself that he had played his part well upon the stage. This part of knowledge we do report also as deficient : not but that it is practised too much, but it hath not been reduced to writing. And therefore lest it should seem⁹⁵

Of success to any that it is not comprehensible by axiom,⁹⁶ it is in life. requisite as we did in the former, that we set down some heads or passages of it.

13. Wherein it may appear at the first a new and unwonted argument to teach men how to raise and make their fortune ; a doctrine wherein every man perchance will be ready to yield himself a disciple, till he see the difficulty : for fortune layeth as heavy impositions as virtue⁹⁷ ; and it is as hard and severe a thing to be a true politique, as to be truly moral. But the handling hereof concerneth learning greatly, both in honour and in substance. In honour, because⁹⁸

⁸⁹ These words were used by Cæsar to a boatman who hesitated to take him across from Greece to Italy, on account of the roughness of the sea, B. C. 49.

⁹⁰ *Stirrups*, supports. *Insolency*, insolence; cp. p. 95, l. 9. *For resolution*, &c., i.e. to inspire men with resolution, not with presumption and boastfulness.

⁹¹ *No question*, used adverbially ; cp. our ‘no doubt.’

⁹² *Contain it within*, hide it.

⁹³ *His uncle*, Julius Cæsar.

⁹⁴ *Conscient*, conscious. *The stage*, see p. 301, n. 40.

⁹⁵ *Axiom*, p. 339, n. 95. In the *De Aug.* Bacon thus defines this knowledge, “It selects and suggests such things as relate to the improvement of a man’s own fortune, and may serve each man for a private note-book or register of his own affairs.”

⁹⁶ *For fortune layeth*, &c. i.e. it is as difficult to be fortunate as it is to be virtuous. For the difference between being ‘a true politique’ and ‘truly moral’ see p. 339, n. 98.

⁹⁷ *Because*, p. 322, n. 86. *Pragmatical*, a Greek word, equivalent to *active* ; see p. 314, n. 47.

pragmatical men may not go away with an opinion that learning is like a lark, that can mount, and sing, and please herself, and nothing else ; but may know that she holdeth as well of⁸⁸ the hawk, that can soar aloft, and can also descend and strike upon the prey. In substance, because it is the perfect law of inquiry of truth, that nothing be in the globe of matter,⁸⁹ which should not be likewise in the globe of crystal, or form¹ ; that is, that there be not any thing in being and action, which should not be drawn and collected into contemplation and doctrine. Neither doth learning admire or esteem of this architecture of fortune otherwise than as of an inferior work : for no man's fortune can be an end worthy of his being ; and many times the worthiest men do abandon their fortune willingly for better respects² ; but nevertheless fortune as an organ³ of virtue and merit deserveth the consideration.

14. First⁴ therefore the precept which I conceive to be most summary towards the prevailing in fortune, is to obtain that window which Momus did require : who seeing in the frame of man's heart such angles and recesses, found fault there was not a window to look into them ; that is to procure good informations of particulars touching persons,⁵ their natures, their desires and ends, their customs and fashions, their helps and advantages, and whereby they chiefly stand⁶ : so again their weaknesses and disadvantages, and where they lie most open, and obnoxious⁷ ; their friends, factions,⁸ dependences ; and again their

⁸⁸ *Holdeth as well of*, resembles also. For the metaphor, see p. 349, n. 63. By 'strike upon the prey' he means that learning can descend from the loftiest heights of speculation to embrace the common affairs of life.

⁸⁹ *The globe of matter*, the world.

¹ *Form*, mind. Learning should, like a mirror, reflect all the phenomena of the universe, and all the details of conduct. Cp. xxiii. 47.

² *For better respects*, to devote themselves to worthier ends ; see p. 31, n. 77.

³ *Organ*, instrument ; cp. p. 242, n. 44.

⁴ According to Æsop's fable Momus complained, not that there is no window in men's breasts, but that the mind is inside, and not on the surface. E. Men do not 'wear their hearts upon their sleeves.' *Momus*, the god of ridicule. The word in Greek signifies censure, or ridicule.

⁵ *Persons*, i.e. with whom we have to deal.

⁶ *Whereby they chiefly stand*, the chief sources of their strength.

⁷ *Obnoxious*, used, as in Latin, as equivalent to *exposed*.

⁸ *Factions*, i.e. the parties by whom they are supported ; cp. *Essay* 48, 'of Followers and Friends.' *Dependents*, dependents.

opposites, enviers, competitors, their moods and times,* *You alone know the favorable times for approaching him*; their principles, rules, and observations,¹⁰ and the like: and this not only of persons, but of actions; what are on foot from time to time, and how they are conducted, favoured, opposed, and how they import,¹¹ and the like. For the knowledge of present actions is not only material in itself, but without it also the knowledge of persons is very erroneous: for¹² men change with the actions; and whilst they are in pursuit they are one, and when they return to their nature they are another. These informations of particulars, touching persons and actions, are as the minor propositions in every active syllogism¹³; for no excellency of observations (which are as the major propositions) can suffice to ground¹⁴ a conclusion, if there be error and mistaking in the minors.

15. That this knowledge is possible, Salomon is our surety, who saith, *Counsel in the heart of man is like deep water; but a man of understanding will draw it out*. And although the knowledge itself falleth not under precept, because it is of individuals,¹⁵ yet the instructions for the obtaining of it may.

* *Times*, i.e. the times at which it is best to approach them. The quotation which follows is from Virgil, *Aen.* iv. 423. The words were spoken by Dido to her sister Anna, with reference to Aeneas.

¹⁰ *Observations*, observances, habits.

¹¹ *How they import*, of what importance they are.

¹² A man's temper and character change entirely when he is pursuing some object, on which he has set his heart. The most easy man may then become irritable, or unscrupulous, or impatient of advice. Bacon, for instance, well as he succeeded with Villiers at ordinary times, made a great mistake when he tried to dissuade him from engaging his brother to the daughter of Coke. See Spedding's *Francis Bacon and his Times*, Vol. 2, p. 226, sq.

¹³ *Active syllogism*, reasonings about conduct. For instance, in determining how we shall behave towards a certain man, we may argue thus,

All ambitious men are impatient of opposition,

This is an ambitious man,

∴ He is not to be opposed.

And, on the strength of this reasoning, we may invariably flatter and assist him. If, however, the minor premiss is false, our conduct will be impolitic. Thus, true major premisses are useless, unless we can supply true minors, i.e. unless we can be sure whether an individual case does or does not belong to the class which forms the subject of the major premiss.

¹⁴ *To ground*, to warrant.

¹⁵ *Of individuals*, which are infinite. See p. 232, l. 18, sq. The characteristics of each individual or action must be determined separately; all that we can do, beforehand, is to give rules by which to determine them.

16. We will begin therefore¹⁶ with this precept, according to the ancient opinion, that the sinews of wisdom are slowness of belief and distrust; that more trust be given to countenances and deeds than to words; and in words rather to sudden passages and surprised words than to set¹⁷ and purposed words. Neither let that be feared which is said, *The face is not to be relied on*, which is meant of a general outward behaviour, and not of the private and subtle motions and labours of the countenance and gesture; which, as Q. Cicero elegantly saith, is *the gate of the mind*. None¹⁸ more close than Tiberius, and yet Tacitus saith of Gallus, *He guessed that he was offended by his looks*. So again, noting the differing character and manner of his commanding Germanicus and Drusus in the senate, he saith, touching his fashion wherein¹⁹ he carried his speech of Germanicus, thus; *in language that was elaborated for effect, more so than could be believed to come from his inmost heart*; but of Drusus thus; *His words were few, but they were earnest and sincere*: and in another place,²⁰ speaking of his character of speech, when he did any thing that was gracious and popular, he saith, that in other things *his words escaped him with a seeming struggle*; but then again, *He spoke out freely and fluently whenever he came to a man's rescue*. So that there is no such²¹ artificer of dissimulation, nor no such commanded countenance that can sever from a feigned tale some of these fashions, either a more slight and careless fashion, or more set and formal, or more tedious and wandering, or coming from a man more drily and hardly.²²

¹⁶ In the *De Aug.* he says concisely, 'knowledge of men may be obtained in six ways: by the expression of their countenance, by their words, by their deeds, by their characters, by the ends which they aim at, and by what others say about them.' With what follows, cp. *Essay 6, 'of Simulation and Dissimulation.'*

¹⁷ *Set.* p. 348. n. 56.

¹⁸ Tacitus' *Annals*, i. 12.

¹⁹ *His fashion wherein, &c.*, the manner in which he spoke of. See Tacitus' *Annals*, i. 52. Drusus was the son, and Germanicus the nephew, of Tiberius. The speech alluded to was delivered in the Senate by Tiberius, on the occasion of disturbances having been quelled in Germany by Germanicus, and in Illyria by Drusus.

²⁰ Tacitus' *Annals*, iv. 31.

²¹ *There is no such, &c.*, There is no one who is so skilled in dissembling, or who has such a command over his countenance, as not to betray the fact, that he is not saying what he means, by something in his manner of saying it. *Nor no, obs.* the double negative.

²² *Hardly*, with difficulty.

17. Neither are deeds such assured²³ pledges, as that they may be trusted without a judicious consideration of their magnitude and nature : *The treacherous man begins by being faithful in small things that he may afterwards deceive with greater profit;* and²⁴ the Italian thinketh himself upon the point to be bought and sold, when he is better used than he was wont to be without manifest cause. For²⁵ small favours, they do but lull men asleep, both as to caution and as to industry : and are, as Demosthenes calleth them, *the food of sloth.* So again we see how false the nature of some deeds are,²⁶ in that particular²⁷ which Mutianus practised upon Antonius Primus, upon that hollow and unfaithful reconciliation which was made between them ; whereupon Mutianus advanced many of the friends of Antonius, *At the same time he lavished on his friends tribuneships and prefec-tures :* wherein under pretence to strengthen him, he did desolate him,²⁸ and won from him his dependences.

18. As for words, though they be like waters²⁹ to physicians, full of flattery and uncertainty, yet they are not to be despised, specially with the advantage of passion³⁰ and affection. For so we see Tiberius upon a stinging and incensing speech of Agrippina,³¹ came a step forth of³² his dissimulation, when he said, *You are hurt because you do not reign ;* of which Tacitus saith, *These words wrung from the Emperor one of the rare utterances of that inscrutable breast ; he rebuked Agrippina with a Greek verse, and reminded her that she was*

²³ Assured, safe, trustworthy. For the quotation which follows, see *Livy*, 28, 42.

²⁴ Mr. Ellis quotes an Italian proverb, to the effect that, 'he who caresses me more than usual either has deceived me already, or wishes to do so.'

²⁵ For, p. 342, n. 18. The words which follow are from a translation of Demosthenes, 3rd *Olynth.* c. 33, where he says, 'These are the things which increase in each of you weakness and indifference.' E.

²⁶ Are, p. 194, n. 52.

²⁷ Particular, used as equivalent to 'a special case' ; cp. p. 244, n. 62. For the story see Tacitus' *Hist.* iv. 39. *Mutianus* and *Antonius* were rivals for power under Domitian.

²⁸ Did desolate him, left him solitary. *Dependences*, p. 355, n. 8.

²⁹ Waters, urine, the appearance of which is sometimes a key to the state of the patient.

³⁰ We can judge the better of a man's feelings from words, which he utters under the influence of passion, and strong feeling. *Affection*, p. 283, n. 1.

³¹ *Agrippina*, Tacitus' *Annals*, iv. 52. She was the widow of Germanicus ; see n. 19.

³² Came a step forth of, &c., abandoned his usual habit of dissimulation.

hurt because she did not reign. And therefore the poet doth elegantly call passions tortures, that urge men to confess their secrets :

Tortured³³ by wine and anger.

And experience sheweth, there are few men so true to themselves³⁴ and so settled, but that, sometimes upon heat, sometimes upon bravery, sometimes upon kindness, sometimes upon trouble of mind and weakness, they open themselves, specially³⁵ if they be put to it with a counter-dissimulation, according to the proverb of Spain, *Di mentira, y sacaras verdad : Tell a lie and find a truth.*

19. As for the knowing of men which is at second hand from reports ; men's weaknesses and faults are best known from their enemies, their virtues and abilities from their friends, their customs and times from their servants, their conceits and opinions from their familiar friends, with whom they discourse most. General fame³⁶ is light and the opinions conceived by superiors or equals are deceitful ; for to such men are more masked ; *The truer report comes from those who know them at home.*

20. But the soundest disclosing and expounding of men is by their natures and ends, wherein the weakest sort of men are best interpreted by their natures, and the wisest by their ends. For it was both pleasantly³⁷ and wisely said (though I think very untruly) by a nuncio³⁸ of the pope, returning from a certain nation where he served as lidger³⁹ : whose opinion being asked touching the appointment of one to go in his place, he wished that in any case they did not send one that was too wise ; because no very wise man would ever imagine what they in that country were like to do. And⁴⁰ certainly it is an error frequent for men to⁴¹ shoot over, and to suppose deeper

³³ Horace, *Epp.* i. 18, 38.

³⁴ *True to themselves, viz.* in keeping their own secrets. *So settled,* of such strength of mind. *Heat,* p. 344, n. 37. *Bravery,* boastfulness.

³⁵ *Specially if, &c., i.e.* you may often get at another man's opinion by dissembling your own.

³⁶ *Fame,* report ; cp. p. 49, n. 8. *Light,* worth little ; cp. our expression 'of weight,' used as equivalent to 'important.'

³⁷ *Pleasantly,* wittily.

³⁸ *Nuncio,* representative at a foreign court. The original meaning of the word is a *messenger.*

³⁹ *Lidger,* ambassador. It is a corruption of the Latin *legatus.*

⁴⁰ Wise men judge others by their own standard, and so commit mistakes by giving men credit for more wisdom than they possess.

⁴¹ *To shoot over,* to overshoot the mark. It is explained by what follows.

ends, and more compass reaches⁴² than are : the Italian proverb being elegant, and for the most part true :

*Di danari, di senna, e di fede,
C'è ne manco che non credi :*

There is commonly less money, less wisdom, and less good faith than men do account upon.⁴³

21. But⁴⁴ princes, upon a far other reason, are best interpreted by their natures, and private persons by their ends. For princes being at the top of human desires, they have for the most part no particular ends whereto they aspire, by distance from which⁴⁵ a man mought take measure and scale of the rest of their actions and desires ; which is one of the causes that maketh their hearts more inscrutable. Neither is it sufficient to inform ourselves in men's ends and natures of the variety of them only, but also of the predominancy,⁴⁶ what humour reigneth most, and what end is principally sought. For so we see, when Tigellinus saw himself outstripped by Petronius Turpilianus in

⁴² *Compass reaches*, subtle contrivances. *Than are*, than men are really capable of.

⁴³ 'Therefore,' Bacon adds in the *De Aug.*, 'you must judge of weak and silly men by their characters, and not from the objects which they aim at. If you judge of what they will do, by the objects which they aim at, you will make mistakes ; for, because they are weak and silly, they will do silly things, such as no prudent man, aiming at the objects which they aim at, would do.' Silly students and wise students equally wish to obtain their degree. I infer that the latter will read, but not that the former will.

⁴⁴ See p. 2, n. 4.

⁴⁵ *By distance from which*, i.e. by the distance at which they are from their ends. In the *De Aug.* he explains his meaning more clearly. 'Princes have nothing to aim at or desire, therefore you cannot judge of what they will do, by their ends. A private individual, on the other hand, is like a traveller, journeying eagerly towards an end, where he may rest. Therefore you may judge from his end what he will do, or not do. Whatever is a means to his end, he will probably do : whatever is opposed to it, he will probably not do—provided, of course, that he be prudent.'

⁴⁶ *Of the predominancy*, explained by what follows,—what is a man's strongest passion, or what his principal object. It is important to know these, for it is by these that his actions will be regulated. Nero loved pleasure, but he loved life more; and Tigellinus rightly conjectured that the way to get rid of a rival was to accuse him of plotting against the Emperor's life. *Tac. Ann. xiv. 57.* Tigellinus and Petronius were two profligate favourites of the Emperor Nero.

Nero's humours of pleasures, *he dived into his secret apprehensions*, he wrought upon Nero's fears, whereby he brake the other's neck.

22. But to all this part of inquiry the most compendious way resteth in three things: the first, to have general acquaintance and inwardness⁴⁷ with those which have general acquaintance and look most into⁴⁸ the world; and specially according to the diversity of business, and the diversity of persons, to have privacy⁴⁹ and conversation with some one friend at least which is perfect and well intelligenced in every several kind.⁵⁰ The second is to keep a good mediocrity in liberty of speech and secrecy; in most things liberty: secrecy where it importeth; for liberty of speech inviteth and provoketh liberty to be used again, and so bringeth much to a man's knowledge; and secrecy on the other side induceth trust and inwardness.⁵¹ The last is the reducing of a man's self to this watchful and serene habit, as to make⁵² account and purpose, in every conference and action, as well to observe as to act. For as Epictetus⁵³ would have a philosopher in every particular action to say to himself, *I wish to do this, and also to keep to my plan*; so a politic man in everything should say to himself, *I wish to do this, and also to learn something⁵⁴ from it*. I have stayed the longer upon this precept of obtaining good information, because it is a main part by itself which answereth to all the rest. But, above all things, caution must be taken that men have a good stay and hold of themselves, and that

⁴⁷ *Inwardness*, exactly equivalent to *intimacy*.

⁴⁸ *Look most into*, have the greatest knowledge of; cp. our expressions, 'to see far into,' or 'to have a deep insight into.'

⁴⁹ *To have privacy, &c.*, to be familiar with, and frequent the society of; cp. p. 340, n. 4.

⁵⁰ *Several kind*, different kind, viz., of persons and affairs.

⁵¹ *Inwardness*, see n. 47. Here it refers to the communication of secrets; cp. 'The secret man heareth many confessions, for who will open himself to a blab, or a babbler? But if a man be thought secret, it inviteth discovery . . . it addeth no small reverence to men's manners and actions if they be not altogether open,' &c.—*Essay 6*.

⁵² *Habit, as to make*, habit of making.

⁵³ *Enchir.* c. 9. See p. 303, n. 62.

⁵⁴ He adds in the *De Aug.* 'which may be useful on some future occasion.' He goes on to say that, 'those who are so absorbed in the matter which they have in hand, that they have not even a thought to spare for anything that may turn up by the way, are indeed the best servants of kings and commonwealths, but fail in advancing their own fortunes.'

this much knowing do not draw on much meddling; for⁵⁵ nothing is more unfortunate than light and rash intermeddling in many matters. So that this variety of knowledge tendeth in conclusion but only to this, to make a better and freer choice of those actions which may concern us, and to conduct them with the less error and the more dexterity.⁵⁶

23. The second precept concerning this knowledge is, for men to take good information touching their own person, and well to understand themselves: knowing that, as S. James saith, though men look oft in a glass, yet they do suddenly forget themselves; wherein⁵⁷ as the divine glass is the word of God, so the politic glass is the state of the world, or times wherein we live, in the which we are to behold ourselves.

24. For men ought to take an unpartial view of their own abilities and virtues; and again of their wants⁵⁸ and impediments; accounting these⁵⁹ with the most, and those other with the least; and from this view and examination to frame the considerations following.

25. First, to consider how the constitution of their nature sorteth with⁶⁰ the general state of the times; which if they find agreeable and fit, then in all things to give themselves more scope and liberty; but if differing and dissonant, then in the whole course of their life to be more close retired, and reserved: as we see in Tiberius, who was never seen at a play, and came not into the Senate in twelve of his last years⁶¹; whereas Augustus Cæsar lived ever in men's eyes, which Tacitus observeth, *Tiberius's character was different.*

⁵⁵ Cp. 'Preserve likewise the rights of inferior places; and think it more honour to direct in chief than to be busy in all.'—*Essay XI.*

⁵⁶ He adds in the *De Aug.* 'and to make a more judicious choice of the persons whose assistance we use.'

⁵⁷ Religion bids us conform ourselves to the precepts of God's word: policy requires us to adapt ourselves to our surroundings. A man who wishes to know exactly what progress he is making in the performance of his religious duty, must often compare his conduct with the standard set up in the Bible; policy requires a man to examine himself equally often, and see how far he is fitted for the times in which he lives.

⁵⁸ Wants, defects.

⁵⁹ Accounting these, &c., exaggerating their defects, and underrating their abilities.

⁶⁰ Sorteth with, suits.

⁶¹ Because he was conscious that his tastes were not in harmony with those of the age.

26. Secondly, to consider how their nature sorteth with professions and courses of life, and accordingly to make election, if they be free⁶²; and, if engaged, to make the departure at the first opportunity: as we see was done by Duke Valentine,⁶³ that was designed by his father to a sacerdotal profession, but quitted it soon after in regard of his parts⁶⁴ and inclination; being such, nevertheless, as a man cannot tell well whether they were worse for a prince or for a priest.

27. Thirdly, to consider how they sort with those whom they are like to have competitors and concurrents⁶⁵; and to take that course wherein there is most solitude,⁶⁶ and themselves like to be most eminent: as Cæsar Julius did, who at first was an orator or pleader; but when he saw the excellency of Cicero, Hortensius, Catulus, and others, for eloquence, and saw there was no man of reputation for the wars but Pompeius, upon whom the state was forced to rely, he forsook his course begun towards a civil and popular greatness, and transferred his designs to a martial greatness.

28. Fourthly, in the choice of their friends and dependences, to proceed according to the composition of their own nature: as we may see in Cæsar, all whose friends and followers were men active and effectual, but not solemn,⁶⁷ or of reputation.

29. Fifthly, to take special heed how they guide themselves by examples, in thinking they can do as they see others do; whereas perhaps their natures and carriages⁶⁸ are far differing. In which error it seemeth Pompey was, of whom Cicero saith, that he was wont often to say, *Sylla could do it, can not I too?* Wherein he was much abused, the natures and proceedings⁶⁹ of himself and his example being the unlikeliest in the world; the one being fierce,

⁶² *Free*, opposed to *engaged*, 'If they have not already made choice of a profession.'

⁶³ Cæsar Borgia, who after his change of profession was made Duke of the Valentinois. Bacon uses the title as a proper name. E.

⁶⁴ *In regard of his parts*, because of his character.

⁶⁵ *Concurrent*, rivals; lit. 'men who run alongside of.'

⁶⁶ *There is most solitude*, there are fewest rivals; cp. p. 110, n. 37.

⁶⁷ *Solemn*, decorous. Cæsar is quoted as an instance of a man who was happy in the choice of his friends. They were men who displayed an infinite affection for him, though they were arrogant and contemptuous to others, and were men of no great character or reputation.

⁶⁸ *Carriages*, modes of action.

⁶⁹ *Proceedings*, his way of doing things.

violent, and pressing the fact⁷⁰; the other solemn, and full of majesty and circumstance, and therefore the less effectual.

But this precept touching the politic knowledge of ourselves hath many other branches, whereupon we cannot insist.

30. Next to the well understanding and discerning of a man's self, there followeth the well opening⁷¹ and revealing a man's self; wherein we see nothing more usual than for the more able man to make the less show. For there is a great advantage in the well setting forth of a man's virtues, fortunes, merits; and again, in the artificial⁷² covering of a man's weaknesses, defects, disgraces; staying upon the one, sliding from the other; cherishing the one by circumstances, gracing the other by expositions,⁷³ and the like. Wherein we see what Tacitus saith of Mutianus, who was the greatest politique⁷⁴ of his time, *In all that he did and said he had the art of displaying himself to advantage*: which requireth indeed some art, lest it turn tedious and arrogant; but yet so, as⁷⁵ ostentation (though it be to the first degree of vanity) seemeth to me rather a vice in manners⁷⁶ than in policy: for as it is said, *Slander boldly, something always sticks*: so, except it be in a ridiculous degree of deformity, *Puff yourself boldly, something always sticks*. For it will stick with the more ignorant and inferior sort of men, though men of wisdom and rank do smile at it and despise it; and yet the authority won with many doth countervail the disdain of a few. But if it be carried with decency and government,⁷⁷ as with a natural, pleasant, and ingenuous⁷⁸ fashion; or at times when it is mixed with some peril and unsafety (as in military

⁷⁰ Pressing the fact, hurrying on to the end which he had in view.

⁷¹ Opening, disclosing. In the *De Aug.* he divides this part of the subject into three branches: the art of setting a man's self forth to advantage, the art of making one's self understood, and the art of suiting one's self to occasions. §§ 30—32 apply to the first of these. With the whole of this passage cp. *Essay 54*, 'of Vainglory.'

⁷² Artificial, skilful.

⁷³ Gracing the other by expositions, giving a specious appearance to his defects by plausible explanations of them.

⁷⁴ Politique, p. 7, n. 23. See Tacitus' *Hist.* ii. 80.

⁷⁵ But yet so, as, but although this is so, still,

⁷⁶ Manners, p. 24, n. 28.

⁷⁷ Government, moderation.

⁷⁸ Ingenious, ingenuous.

persons⁷⁹) ; or at times when others are most envied ; or with easy⁸⁰ and careless passage to it and from it, without dwelling too long, or being too serious ; or with an equal freedom of taxing⁸¹ a man's self, as well as gracing himself ; or by occasion of repelling or putting down others' injury or insolency ; it doth greatly add to reputation : and surely not a few solid natures, that want this ventosity and cannot sail in the height of the winds,⁸² are not without some prejudice and disadvantage by their moderation.

31. But for these flourishes⁸³ and enhancements of virtue, as they are not perchance unnecessary, so it is at least necessary that virtue be not disvalued⁸⁴ and imbased under the just price ; which is done in three manners : by offering and obtruding a man's self ; wherein⁸⁵ men think he is rewarded, when he is accepted ; by doing too much, which will not give that which is well done leave to settle, and in the end induceth satiety⁸⁶ ; and by finding too soon the fruit of a man's virtue, in commendation, applause, honour, favour ; wherein if a man be pleased with a little, let him hear what is truly said, *Do not take so much delight in a little thing as to lead men to believe that you are unaccustomed to greater things.*

32. But the covering of defects is of no less importance than the

⁷⁹ He adds in the *De Aug.* 'in time of war.'

⁸⁰ Or with easy, &c., i.e. if what a man says in praise of himself appears to fall from him carelessly and unintentionally, without being dwelt upon.

⁸¹ Taxing, p. 208, n. 36.

⁸² Cannot sail in the height of the winds, i.e. want the art of spreading all sail in pursuit of their honour, i.e. of availing themselves of every advantage in getting honour for themselves. Cp. "Those that are of solid and sober natures have more of the ballast than of the sail."—*Essay 54.*

⁸³ Flourishes, cp. p. 41, n. 65. Here it means 'artifices for setting forth virtue to advantage.'

⁸⁴ Disvalued, &c. depreciated, and allowed to fall below its proper value. Which, viz., the depreciation of virtue. A man does not get the reward which his good qualities deserve, if he obtrudes himself when his services are not asked for, or if he makes men weary of him by proceeding too fast, or if he shows himself satisfied with small rewards.

⁸⁵ Wherein, i.e. in cases where a man obtrudes himself.

⁸⁶ By doing too much, &c., This is explained more clearly in *De Aug.* thus, "By doing too much at the commencement of an action, and by performing all at once what ought to be done by degrees: which, in matters well managed, produces a premature favour at first, but in the end makes men weary of him."

valuing⁸⁷ of good parts ; which may be done likewise in three manners, by caution, by colour,⁸⁸ and by confidence. Caution is when men do ingeniously and discreetly avoid to be put into those things for which they are not proper : whereas contrariwise bold and unquiet spirits will thrust themselves into matters without difference, and so publish and proclaim all their wants.⁸⁹ Colour is when men make a way for themselves to have a construction made of their faults or wants, as proceeding from a better cause or intended for some other purpose. For of the one⁹⁰ it is well said,

A vice often lurks under the shadow of a neighbouring virtue, and therefore whatsoever want a man hath, he must see that he pretend the virtue that shadoweth it ; as if he be dull, he must affect gravity ; if a coward, mildness ; and so the rest. For the second,⁹¹ a man must frame some probable cause why he should not do his best, and why he should dissemble his abilities ; and for that purpose must use to dissemble those abilities which are notorious in him, to give colour⁹² that his true wants are but industries and dissimulations. For⁹³ confidence, it is the last but the surest remedy ; namely, to depress⁹⁴ and seem to despise whatsoever a man cannot attain : observing the good⁹⁵ principle of the merchants, who endeavour to raise the price of their own commodities, and to beat down the price of others. But there is a confidence that passeth⁹⁶ this other ; which is to face out a man's own defects, in seeming to conceive that he is best in those things wherein he is failing⁹⁷ ; and, to help that again, to seem on the other side that he hath least opinion of himself in those things wherein he is best : like as we shall see it commonly in poets, that if they show their verses, and you except to⁹⁸ any, they will say *That that line cost them more labour than any of the rest* ; and presently will seem to

⁸⁷ Valuing, display, which makes men set a high value on them.

⁸⁸ Colour, pretext.

⁸⁹ Wants, p. 362, n. 58.

⁹⁰ The one, viz., faults. The quotation is from Ov. *Ars. Am.* ii. 662.

⁹¹ The second, viz., defects.

⁹² To give colour, to induce others to think. *Are but industries, are purposely affected.* 'Of industry' is the Latin phrase for 'intentionally.'

⁹³ For, p. 358, n. 25. *The last, the least worthy.*

⁹⁴ To depress, to disparage.

⁹⁵ Good, prudent.

⁹⁶ Passeth, surpasses, viz., in impudence.

⁹⁷ Failing, wanting, deficient.

⁹⁸ Except to, we should now say 'take exception to.'

disable^{⁹⁹} and suspect rather some other line, which they know well enough to be the best in the number. But above all, in this righting and helping of a man's self in his own carriage,^¹ he must take heed he show not himself dismantled^² and exposed to scorn and injury, by too much dulceness, goodness, and facility of nature; but show some sparkles of liberty, spirit, and edge. Which kind of fortified carriage, with a ready rescussing^³ of a man's self from scorns, is sometimes of necessity imposed upon men by somewhat^⁴ in their persons or fortune; but it ever succeedeth with good felicity.

33. Another^⁵ precept of this knowledge is by all possible endeavour to frame the mind to be pliant and obedient to occasion; for nothing hindereth men's fortunes so much as this: *He^⁶ remained unchanged after change was required*, men are where they were when occasions turn^⁷: and therefore to Cato whom Livy maketh such an architect of fortune, he addeth that he had a *versatile mind*. And thereof it cometh that these grave solemn wits, which must be like themselves^⁸ and cannot make departures, have more dignity than felicity. But in some it is nature to be somewhat viscous and inwrapped^⁹ and not easy to turn. In some it is a conceit that is almost a nature, which is, that men can hardly make themselves believe that they ought to change their

^{⁹⁹} *Disable*, p. 18, n. 82.

^¹ *In this righting, &c.*, in this matter of maintaining one's proper position, and making a good figure in the world.

^² *Dismantled*, disarmed. *Dulceness*, sweetness of temper. *Sparkles*, sparks. *Edge*, sharpness.

^³ *Rescussing*, rescuing.

^⁴ *By somewhat*, &c., e.g. by the fact of their being dwarfs, or bastards. See p. 325, n. 4. *But it ever succeedeth*, 'Men of this nature, if ability be not wanting, generally turn out fortunate.'—*De Aug.*

^⁵ § 33 considers the means of 'suiting one's self to occasions.' § 36 considers the art 'of making one's self understood.' See above, n. 71. The 'remaining sections, down to § 47, contain samples of what Bacon calls scattered precepts for the architecture of fortune.'

^⁶ This is said by Cicero, *de Claris Orat.*, c. 95, of the youthful character of the eloquence of Hortensius. E.

^⁷ *Turn*, change. The quotation which follows is from Livy, Bk. 39, ch. 40:

^⁸ *Which must be like themselves*, which always remain the same.

^⁹ *Inwrapped*, the metaphor is taken from something tightly rolled up, and therefore stiff and not pliant. *Not easy to turn*, the exact English equivalent of 'not versatile.'

course, when they have found good by it in former experience. For¹⁰ Machiavel noted wisely how Fabius Maximus would have been temporizing still, according to his old bias, when the nature of the war was altered and required hot pursuit. In some other it is want of point¹¹ and penetration in their judgement, that they do not discern when things have a period, but come in¹² too late after the occasion ; as Demosthenes compareth the people of Athens to country fellows when they play in a fence school, that if they have a blow, then they remove their weapon to that ward,¹³ and not before. In some other it is a lothness to leese¹⁴ labours passed, and a conceit that they can bring about occasions to their ply ; and yet in the end, when they see no other remedy, then they come to it with disadvantage ; as Tarquinius, that gave for the third part of Sibylla's books the treble price, when he mought at first have had all three for the simple.¹⁵ But from whatsoever root or cause this restiveness¹⁶ of mind proceedeth, it is a thing most prejudicial ; and nothing is more politic than

¹⁰ See *Discorsi.* iii. 9. Fabius Maximus' policy, in the 2nd Punic war, was to wear out Hannibal by perpetually harassing him, and cutting off his supplies, but never risking a pitched battle. He obtained the name of 'Cunctator,' i.e. the delayer. *Would have been temporizing*, i.e. would have gone on with his policy of putting off an engagement.

¹¹ *Point*, acuteness. *Things have a period*, a state of things has come to an end. Cp. p. 41, n. 68.

¹² *Come in*, change, adapt themselves. The quotation which follows is from *Philip* i. § 46.

¹³ *To that ward*, to protect that part of the body, on which they have received the blow.

¹⁴ *To leese*, p. 53, n. 34. *Their ply*, their bent, or bias.

¹⁵ *The simple*, i.e. the price which she asked at first. A woman one day came to Tarquin and offered to sell him nine books, which the king refused to buy. She then went away, and burnt three of the books, and, returning to the king, asked as much as before for the remaining six. The king laughed at her. She then went and burnt three more of the books, and still asked the same price for the three that were left. The king, struck by her conduct, consulted his augur, who told him to buy the three books, saying that he had done wrong in not buying the nine, for that these were the books of the Sibyl, and contained great secrets. The three books which the king bought were carefully preserved at Rome, and were consulted whenever the state was in danger. Cp. *Essay* 21.

¹⁶ *Restiveness*, resistance, vis., the reluctance to change with changing circumstances.

to make the wheels of our mind concentric and voluble with¹⁷ the wheels of fortune.

34. Another precept of this knowledge, which hath some affinity with that we last spake of, but with difference, is that which is well expressed, *yield to destiny and the gods*,¹⁸ that men do not only turn¹⁹ with the occasions, but also run with the occasions, and not strain their credit or strength to over-hard or extreme points; but choose in their actions that which is most passable: for this will preserve men from foil, not occupy them too much about one matter, win opinion of²⁰ moderation, please the most, and make a show of a perpetual felicity in all they undertake; which cannot but mightily increase reputation.

35. Another part of this knowledge seemeth to have some repugnancy²¹ with the former two, but not as I understand it; and it is that which Demosthenes uttereth in high²² terms; *Wise men should lead events as the general leads an army; they should bring about that which they wish to be done, and not merely follow events.* For if we observe we shall find two differing kinds of sufficiency²³ in managing of business: some can make use of occasions aptly and dexterously, but plot little²⁴; some can urge and pursue their own plots well, but cannot accommodate nor take in²⁵; either of which is very unperfect without the other.

¹⁷ *Voluble with*, used in its literal sense of 'revolving with.'

¹⁸ Lucan, viii. 485.

¹⁹ *Turn*, p. 367, n. 7. *Run with the occasion*, i.e. 'not row against the stream.' 'We ought to look round and observe where things lie open to us, and where they are closed and obstructed, where they are difficult and where easy, that we may not waste our strength on things to which convenient access is forbidden.'—*De Aug.*

²⁰ *Win opinion of*, gain them the reputation of. *The most*, i.e. the greater number of people.

²¹ *Some repugnancy*, the former precept bid us follow events, this bids us command them. The politic man will do both; he will do what the times demand, but, when he wants a thing done, he will not wait till the times are favorable, but will know how to seize an accidental opportunity for getting it done. Success in life is obtained by a combination of prudence and audacity.

²² *High*, grandiloquent. See *Philipp.* I, § 45.

²³ *Sufficiency*, ability.

²⁴ *Plot little*, i.e. contrive or invent little of themselves.

²⁵ *Accommodate nor take in*, adapt themselves to circumstances, nor take advantage of opportunities.

36. Another part of this knowledge is the observing a good mediocrity in the declaring,²⁶ or not declaring, a man's self: for although depth of secrecy, and making way²⁷ (*as a ship does through the water*, which the French calleth *secret plottings*, when men set things in work without opening themselves at all), be sometimes both prosperous and admirable: yet many times *dissimulating produces mistakes by which the dissembler himself is ensnared*. And therefore we see the greatest politiques have in a natural and free manner professed their desires, rather than been reserved and disguised in them. For so wee see that Lucius Sylla made a kind of profession, *that he wished all men happy or unhappy, as they stood his freinds or enemies*. So Cæsar, when he went first into Gaul, made no scruple to profess, *That he had rather be first in a village than second at Rome*. So again, as soon as he had begun the war,²⁸ we see what Cicero saith of him, (meaning of Cæsar) *The one does not refuse, but in a manner demands to be called what in reality he is, a tyrant*. So we may see in a letter of Cicero to Atticus, that Augustus Cæsar, in his very entrance into affairs, when he was a darling of the senate, yet in his harangues to the people would swear,²⁹ *As I hope to attain my father's honours* (which was no less than the tyranny), save that, to help it,³⁰ he would stretch forth his hand towards a statua of Cæsar's that was erected in the place: and men laughed, and wondered, and said, Is

²⁶ *In the declaring, &c., i.e.* in the disclosing or concealing a man's meaning in particular actions. The student will notice that this is a very different thing from the arts of self-display, and adaptation to circumstances, which he has just been discussing.

²⁷ *Making way*, proceeding. With what follows, cp. *Essay 6*. 'Certainly the ablest men, that ever were, have had all an openness and frankness of dealing, and a name of certainty and veracity. But then they were like, horses well managed, for they could tell passing well, when to stop or turn. A diplomatist is not likely to succeed by a policy of falsehood: but he is likely to mislead men by speaking the truth, for the simple reason that men, generally, will not believe him.'

²⁸ *The war*, viz., against the Senatorial party. The result of the war was that Cæsar obtained supreme power. For the quotation which follows, see *Ep. ad Att. x. 4.*

²⁹ *Swear*, i.e. use this form of oath.

³⁰ *To help it*, to lessen the unpopularity which he was likely to incur by the form of oath which he used. The statue of Cæsar in the forum was a permanent memorial of the services which Cæsar had rendered to the Roman people. *Save that*, is equivalent to 'it is true that' *The place*, p. 342, n. 27. Cicero, *Ep. ad Att. xvi. 15.*

it possible? or Did you ever hear the like? and yet thought he meant no hurt; he did it so handsomely³¹ and ingenuously. And all these were prosperous: whereas Pompey, who tended to the same ends, but in a more dark and dissembling manner, as Tacitus³² saith of him, *His character was more disguised but no way better*, wherein Sallust concurreth, *modest in speech, but shameless in thoughts*, made it his design, by infinite secret engines,³³ to cast the state into an absolute anarchy and confusion, that the state mought cast itself into his arms for necessity and protection,³⁴ and so the sovereign power be put upon him, and he never seen in it³⁵: and when he had brought it (as he thought) to that point, when he was chosen consul alone, as never any was, yet he could make no great matter of it,³⁶ because men understood him not; but was fain in the end to go the beaten track of getting arms into his hands, by³⁷ colour of the doubt of Cæsar's designs: so tedious,³⁸ casual, and unfortunate are these deep dissimulations: whereof it seemeth Tacitus made this judgement, that they were a cunning of an inferior form in regard of true³⁹ policy; attributing the one to Augustus, the other to Tiberius; where, speaking of Livia, he saith, *She combined the diplomacy of her husband with the dissimulation of her son*: for surely the continual habit of dissimulation is but a weak and sluggish cunning and not greatly politic.

³¹ *Handsomely*, openly.

³² *Tacitus Hist.* ii. 38.

³³ *Engines*, contrivances.

³⁴ *For necessity and protection*, i.e. that it might be compelled to do it for the sake of protection.

³⁵ *And he never seen in it*, without his seeming to have sought it.

³⁶ *Make no great matter of it*, could not turn his position to advantage.

³⁷ *By colour*, under pretext, viz., of protecting himself against Cæsar.

³⁸ *Tedious*, slow. *Casual*, liable to accidents.

³⁹ *In regard of*, in comparison with. See *Tac. Ann. v. 1.* Livia was the mother of Tiberius. Cp. *Essay 6*, "If a man have that penetration of judgement, as he can discern what things are to be laid open, and what to be secreted, and what to be shewed at half lights, and to whom, and when, (which indeed are arts of state, and arts of life, as Tacitus well calleth them,) to him a habit of dissimulation is a hindrance and a poorness. But if a man cannot obtain to that judgement, then it is left to him, generally, to be close, and a dissembler." The dissimulation of the Emperor Tiberius has been already noticed on p. 357.

37. Another precept of this architecture of fortune is to accustom our minds to judge of the proportion or value⁴⁰ of things as they conduce and are material to our particular ends: and that to do substantially, and not superficially. For we shall find the logical part (as I may term it) of some men's minds good, but the mathematical part erroneous; that is, they can well judge of consequences, but not of proportions and comparison, preferring things of show and sense⁴¹ before things of substance and effect. So some fall in love with access to princes, others with popular fame and applause, supposing they are things of great purchase,⁴² when in many cases they are but matters of envy, peril, and impediment. So some measure things according to the labour and difficulty or assiduity which are spent about them; and think, if they be ever moving, that they must needs advance and proceed; as⁴³ Cæsar saith in a despising manner of Cato the second, when he describeth how laborious and indefatigable he was to no great purpose, *He used to do all these things with great energy.* So in most things men are ready to abuse⁴⁴ themselves in thinking the greatest means to be best, when it should be the fittest.

38. As⁴⁵ for the true marshalling of men's pursuits towards their fortune, as they are more or less material, I hold them to stand thus. First the amendment of their own minds. For the remove of the impediments of the mind will sooner clear the passages of fortune,⁴⁶ than the obtaining fortune will remove the impediments of the mind. In the second place I set down wealth and means; which I know most men would have placed first, because of the general use

⁴⁰ *The proportion or value*, the relative values. Men can infer logically enough what means will conduce to the objects which they have in view, but they cannot calculate the greater or less degree in which different means will further the same end.

⁴¹ *Of sense*, i.e. which strike the sense.

⁴² *Purchase*, value.

⁴³ Cæsar, *de bell civil.* 1. 30 See p. 21, n. 6.

⁴⁴ *Abuse*, p. 251, n. 12. *The greatest means*, the greatest persons employed as means. "Men often deceive themselves, by thinking that if they procure the assistance of any man of worth and reputation, they are certain to succeed; whereas it is not the *greatest* but the *fittest* instruments that finish the work both quickest and best."—*De Aug.*

⁴⁵ Bacon now proceeds to marshall, i.e. arrange, in the order of their importance, men's pursuits, i.e. the objects which men must aim at, if they wish to advance their fortunes.

⁴⁶ *The passages of fortune*, the road to fortune.

which it beareth towards all variety of occasions. But that opinion I may condemn with like reason as Machiavel⁴⁷ doth that other, that moneys were the sinews of the wars ; whereas (saith he) the true sinews of the wars are the sinews of men's arms, that is, a valiant, populous, and military nation : and he voucheth aptly the authority of Solon, who, when Cresus shewed him his treasury of gold, said to him, that if another came that had better iron, he would be master of his gold. In like manner it may be truly affirmed, that it is not moneys that are the sinews of fortune, but it is the sinews and steel of men's minds, wit, courage, audacity, resolution, temper, industry, and the like. In the third place I set down reputation, because of the peremptory⁴⁸ tides and currents it hath ; which, if they be not taken in their due time, are seldom recovered, it being extreme hard to play an after game of reputation.⁴⁹ And lastly I place honour,⁵⁰ which is more easily won by any of the other three, much more by all, than any of them can be purchased by honour. To conclude this precept, as there is order and priority in matter, so is there in time,⁵¹ the preposterous placing whereof is one of the commonest errors : while men fly to their ends when they should intend their beginnings, and do not take things in order of time as they come on, but marshal them according to greatness and not according to instance⁵² ; not observing the good precept, *Let us do what is pressing.*

39. Another precept of this knowledge is not to embrace any matters which do occupy too great a quantity of time, but to have that sounding in a man's ears,⁵³ *But meanwhile time which can never be recalled, is flying :* and that is the cause why those which take their

⁴⁷ See *Discorsi*. ii. 10 ; cp. *Essay* 29, 'Neither is money the sinews of war, (as it is trivially said) when the sinews of men's arms, in base and effeminate people are failing.' *Crusus*, king of Lydia, b.c. 560, was overthrown by Cyrus. *Solon*, p. 29, n. 66.

⁴⁸ *Peremptory*, fixed; cp. p. 329, 'things wherein nature is peremptory.' We can no more command reputation, than we can command the ebb and flow of the sea. When it comes to us, we must value it, for, once gone, it is difficult to recover.

⁴⁹ *To play an after game of reputation*, to restore a falling reputation.

⁵⁰ *Honour*, i.e. honours, such as office, &c.

⁵¹ We must place things in the order of their importance : with regard to time, we must do things at the proper time, and give to each thing the amount of time which it demands. *Preposterous*, in the wrong order.

⁵² *Instance*, p. 300, n. 24.

⁵³ Virgil, *Georg.* iii. 284.

course of rising by professions of burden,⁵⁶ as lawyers, orators, painful divines, and the like, are not commonly so politic for their own fortune, otherwise than in their ordinary way, because they want time to learn particulars, to wait occasions, and to devise plots.⁵⁷

40. Another precept of this knowledge is to imitate nature which doth nothing in vain; which surely a man may do if he do well interlace⁵⁸ his business, and bend not his mind too much upon that which he principally intendeth.⁵⁹ For a man ought in every particular action so to carry⁶⁰ the motions of his mind, and so to have one thing under another, as if he cannot have that he seeketh in the best degree, yet to have it in a second, or so in a third; and if he can have no part of that which he purposed, yet to turn the use of it⁶¹ to somewhat else; and if he cannot make anything of it for the present, yet to make it as a seed of somewhat in time to come; and if he can contrive no effect or substance⁶² from it, yet to win some good opinion by it, or the like. So that he should exact an account of himself of every action, to reap somewhat, and not to⁶³ stand amazed and confused if he fail of that he chiefly meant: for nothing is more impolitic than to mind actions wholly one by one. For he that doth so leeseth⁶⁴ infinite occasions which intervene, and are many times more proper and propitious for somewhat that he shall need afterwards, than for that which he urgeth for the present; and therefore men must be per-

⁵⁶ Professions of burden, laborious professions. Painful, industrious. Divines, theologians.

⁵⁷ To devise plots, i.e., to devise means for advancing their own fortunes. The advancement of a man's fortune demands the whole of his time.

⁵⁸ Interlace, mix. It is explained below to mean 'not minding actions wholly one by one.' We should never allow our attention to be wholly absorbed by the business in which we are engaged, but always consider to what incidental uses our labours may be turned, and always keep our eyes open for any favourable opportunity, that may turn up by the way, of furthering some other end than that at which we are immediately aiming.

⁵⁹ Intendeth, is aiming at

⁶⁰ So to carry——under another, a man ought so to direct his attention, and so to subordinate his aims, one to another, that, &c.

⁶¹ Of it, i.e. of the labour which he has spent on it.

⁶² Substance, substantial, or solid advantage.

⁶³ To, the construction is irregular; 'to' should be omitted; c. p. 123, n. 39. Amazed, p. 348, n. 58.

⁶⁴ Leeseth, p. 53, n. 34.

feet in that rule,⁶³ *These things ought ye to do, and not to leave the other undone.*

41. Another precept of this knowledge is, not to engage a man's self peremptorily⁶⁴ in any thing, though it seem not liable to accident; but ever to have a window to fly out at, or a way to retire: following the wisdom in the ancient fable of the two frogs, which consulted when their *plash*⁶⁵ was dry whither they should go; and the one moved to go down into a pit, because it was not likely the water would dry there; but the other answered, True, but if it do, how shall we get out again?

42. Another precept of this knowledge is that ancient precept of Bias,⁶⁶ construed not to any point of perfidiousness, but only to caution and moderation, *Love your friend as one who may some day be your enemy, and hate your enemy as one who may some day be your friend.* For it utterly betrayeth all utility for men to embark themselves too far into unfortunate friendships, troublesome spleens,⁶⁷ and childish and humorous⁶⁸ envies or emulations.

43. But I continue this beyond the measure of an example; led, because I would not have such knowledges, which I note as deficient, to be thought things imaginative or in the air, or an observation or two much made of, but things of bulk and mass, whereof an end is hardlier⁶⁹ made than a beginning. It must be likewise conceived, that in these points which I mention and set down, they are far from complete tractates of them, but only as small pieces for patterns. And lastly, no man I suppose will think that I mean fortunes are not obtained without all this ado; for I know they come tumbling into some men's laps; and a number obtain good fortunes by diligence in a plain way, little intermeddling, and keeping themselves from gross errors.

⁶³ *Matt. xxiii. 23.* The words were used by Christ to the Pharisees who, he said, devoted all their attention to religious ceremonies, and neglected the moral precepts of religion. Here, of course, the application is general, 'Do not attend to any one thing exclusively.'

⁶⁴ *Peremptorily*, irrevocably.

⁶⁵ *Plash*, pool. *Moved*, proposed; cp. our use of the word 'motion.'

Cp. Colours of Good and Evil, 4.

⁶⁶ *Bias*, one of the seven wise men of Greece. See p. 146, n. 5.

⁶⁷ *Spleens*, hatred. The spleen was supposed to be the seat of anger.

⁶⁸ *Humorous*, capricious, unreasonable.

⁶⁹ *Hardlier*, with greater difficulty.

44. But as Cicero, when he setteth down an idea of a perfect orator, doth not mean that every pleader should be such; and so likewise, when⁷⁰ a prince or a courtier hath been described by such as have handled those subjects, the mould⁷¹ hath used to be made according to the perfection of the art, and not according to common practice: so I understand it, that it ought to be done in the description of a politic man, I mean politic for his own fortune.

45. But it must be remembered all this while, that the precepts which we have set down are of that kind which may be counted and called *honest arts*. As for evil arts, if a man would set down for himself that principle of Machiavel, *That a man seek not to attain virtue itself, but the appearance only thereof; because the credit of virtue is a help, but the use of it is cumber⁷²*: or that other of his principles, *That he presuppose, that men are not fitly to be wrought⁷³ otherwise but by fear; and therefore that he seek to have every man obnoxious, low, and in strait*, which the Italians call *seminar spine*, to sow thorns: or that other principle, contained in the verse which Cicero citeth, *Let friends perish, so long as enemies perish with them*, as the triumvirs,⁷⁴ which sold every one to other the lives of their friends for the deaths of their enemies: or that other protestation of L. Catilina, to⁷⁵ set on fire and trouble states, to the end to fish in droumy⁷⁶ waters, and to unwrap their fortunes, *If my fortunes be set on fire I will extinguish it not with water but with destruction*: or that other principle of Lysander, *That children are to be deived with comfits, and men with oaths*: and the like evil and corrupt positions,⁷⁷ whereof (as in all things) there are more in number than

⁷⁰ The allusion is probably to the *Prince* of Machiavelli, and the *Cortigiano* of Castiglioni. E.

⁷¹ The mould, the model, literally, the shape in which a thing is cast.

⁷² Cumber, an encumbrance. See Mach. *Prince*, ch. 17—18.

⁷³ Wrought, influenced. *Obnoxious*, p. 355, n. 7. In strait, in difficulties. In the *De Aug.* he says 'so that, according to Machiavelli, the politic man would seem to be what the Italians call "a sower of thorns."

⁷⁴ Cic. *pro Deiotar.*, ch. 9. *The triumvirs*, p. 213, n. 76.

⁷⁵ To set, i.e. that he would set.

⁷⁶ Droumy, troubled. A man who can 'fish in troubled waters' is one who has the art of turning anarchy and confusion to his own profit. To unwrap, to unfurl, i.e. to increase. For the quotations which follow, see Cic. *pro Muraen.*, c. 25, and Plut. *Lysand.*, c. 8. Lysander was a celebrated Spartan admiral, in the fifth century B. C.

⁷⁷ Positions, p. 353, n. 82.

of the good : certainly with these dispensations from the laws of charity and integrity, the pressing of a man's fortune may be more hasty and compendious. But it is in life as it is in ways, the shortest way is commonly the foulest, and surely the fairer way is not much about.

46. But men, if they be in their own power, and do bear and sustain themselves, and be not carried away with a whirlwind or tempest of ambition, ought in the pursuit of their own fortune to set before their eyes not only that general map⁷⁸ of the world, *That all things are vanity and vexation of spirit*, but many other more particular cards⁷⁹ and directions : chiefly that, that being⁸⁰ without well-being is a curse, and the greater being the greater curse ; and that all virtue is most rewarded, and all wickedness most punished in itself : according as the poet saith excellently :

*Ye brave young men, what equal gifts can we,
In recompense of such desert, decree ?
The greatest, sure, and best ye can receive
The gods, and your own conscious worth will give.*

And so of the contrary.⁸¹ And secondly⁸² they ought to look up to the eternal providence and divine judgement, which often subverteth the wisdom of evil plots and imaginations, according to that scripture, *He hath conceived mischief, and shall bring forth a vain thing*. And although men should refrain⁸³ themselves from injury and evil arts, yet this incessant and Sabbathless⁸⁴ pursuit of a man's fortune leaveth not tribute which we owe to God of our time ; who (we see) demandeth a tenth of our substance,⁸⁵ and a seventh, which is more

⁷⁸ *Map*, i.e. picture or description. See *Eccles.* ii. 11. The point of the quotation is that nothing in this world is worth sinning for.

⁷⁹ *Cards*, charts.

⁸⁰ Life without honesty is a curse : and the higher the position in life, the greater the curse.

⁸¹ *And so of the contrary*, and on the other hand, it is equally true that vice is its own punishment. See *Cic. Ep. ad Att.* ix. 12. The preceding quotation is from *Virgil, Aen.* ix. 252.

⁸² *Secondly*, The first precept is, Do not be vicious, for the vicious man is never happy. The second precept is, Remember that God may foil any immoral plans, that you contrive for pushing your own fortunes. For the quotation, see *Job* xv. 35.

⁸³ *Refrain*, p. 78, n. 85. *Injury*, wrong-doing.

⁸⁴ *Sabbathless*, restless ; see p. 161, n. 79.

⁸⁵ By the Jewish law a man was bound to give a tenth of his substance to God, and to keep one day in seven holy.

strict, of our time: and it is to small purpose to have an erected face towards heaven, and a perpetual groveling spirit upon earth, eating dust as doth the serpent,⁸⁶ *Fixing to the earth the particle of the divine essence.* And if any man flatter himself that he will employ his fortune well, though he should obtain it ill, as was said concerning Augustus Cæsar, and after of Septimius Severus, *That either they should never have been born, or else they should never have died,* they did so much mischief in the pursuit and ascent of their greatness, and so much good when they were established; yet these compensations⁸⁷ and satisfactions are good to be used, but never good to be purposed. And lastly, it is not amiss for men in their race toward their fortune, to cool themselves a little with that conceit which is elegantly expressed by the Emperor Charles the Fifth, in his instructions to the king his son, *That fortune hath somewhat of the nature of a woman, that if she be too much wooed she is the farther off.* But⁸⁸ this last is but a remedy for those whose tastes are corrupted: let men rather build upon that foundation which is as a corner-stone of divinity and philosophy, wherin they join close,⁸⁹ namely that same *Seek first.* For divinity saith, *Seek⁹⁰ ye first the kingdom of God, and all these things shall be added unto you:* and philosophy saith, *Seek ye first the good things of the mind: all other things shall be given unto you, or the want of them shall not be felt.* And although the human foundation

⁸⁶ *Eating dust, &c.*, see p. 317, n. 66. In the *De Aug.* he introduces the quotation with the words, 'This did not escape the observation of the heathen.' See Hor. Sat. ii. 2, 79. 'The particle of the divine spirit' is the human mind.

⁸⁷ *These compensations, &c.*, If a man has succeeded by immoral means, he should make a good use of his success, to compensate for his immorality; but he should not deliberately adopt immoral means to succeed, with the idea of doing good when he has succeeded.

⁸⁸ It is unnecessary to caution a moral man against adopting immoral means to succeed, on the ground that those, who take pains to succeed, are often unfortunate; for he will take his stand upon the promises of theology and philosophy, that the righteous and virtuous man shall want nothing.

⁸⁹ *Wherein they join close*, in which they almost agree. Theology (divinity) and philosophy very nearly agree as to what it is that a man should 'seek first,' i.e. make his chief object in life. Theology says that it is 'the kingdom of God,' i.e. righteousness, as defined in the Bible; philosophy says that it is 'the good things of the mind,' i.e. virtue.

⁹⁰ *Matth. vi. 33.* 'God will supply all the wants of the righteous man.'

hath somewhat of the sands,⁹¹ as we see in M. Brutus, when he brake forth into that speech.

*I^{**} worshipped thee, Virtue, as a reality; but thou art an empty name;*

yet the divine foundation is upon the rock. But this may serve for a taste of that knowledge which I noted as deficient.

47. Concerning government, it is a part of knowledge secret and retired in both these respects in which things are deemed secret; for some things are secret because they are hard to know, and some because they are not fit to utter. We see all governments are obscure and invisible:

*The⁹³ mind works in each member of the frame,
And stirs the mighty whole.*

Such is the description of governments. We see the government of God over the world is hidden, insomuch as it seemeth to participate of much irregularity and confusion. The government of the soul in moving the body is inward⁹⁴ and profound, and the passages thereof hardly to be reduced to demonstration. Again, the wisdom of antiquity (the shadows whereof are in the poets) in the description of torments and pains, next unto the crime of rebellion, which⁹⁵ was the giants' offence, doth detest the offence of futility,⁹⁶ as in Sisyphus and

⁹¹ *Hath somewhat of the sands*, sometimes fails; literally, rests on a weak foundation. The metaphor is taken from a parable in which Christ contrasts the wise man, who builds his house upon a rock, with the foolish man who builds it on the sands.

⁹² This is said by Dio Cassius to have been the dying exclamation of Brutus. The virtuous man may not *always* be happy; but God never fails in his promise to the righteous.

⁹³ Virgil, *En.* vi. 726. We cannot agree with Bacon that the proceedings of a government should be kept secret; but we must remember that, in his days, many of the most important affairs of State were settled privately at the council table of the sovereign, who used his own discretion as to when he should summon parliaments, and what communications he should make to them.

⁹⁴ *Inward*, hidden from view. Cp. *intrinsic*, p. 54, n. 42. *Passages*, cp. p. 33, n. 3.

⁹⁵ See p. 174, n. 50.

⁹⁶ *Futility*, talkativeness. Sisyphus and Tantalus were condemned to perpetual punishment in hell, for revealing the secrets of the gods. In the *De Aug.* he omits his remarks as to the secret nature of government, and says that he intends to exhibit a model of a perfect government, in another work.

Tantalus. But this was meant of particulars: nevertheless even unto the general rules and discourses of policy and government there is due a reverent and reserved handling.

48. But contrariwise in the governors towards the governed, all things ought as far as the frailty of man permitteth to be manifest and revealed. For⁹⁷ so it is expressed in the scriptures touching the government of God, that this globe, which seemeth to us a dark and shady body, is in the view of God as crystal: *And before the throne there was a sea of glass, like unto crystal.* So unto princes and states, and specially towards wise senates and councils, the natures and dispositions of the people, their conditions and necessities, their factions and combinations, their animosities and discontents, ought to be, in regard of the variety of their intelligences,⁹⁸ the wisdom of their observations, and the height of their station where they keep sentinel, in great part clear and transparent. Wherefore, considering that I write to a king that is a master of this science, and is so well assisted, I think it decent to pass over this part in silence, as willing to obtain the certificate which one of the ancient philosophers aspired unto;

He gives by way of example two treatises, one on the art of extending the limits of an empire: the other on universal justice. His remarks on the first of these two subjects are to be found in the 29th *Essay*, which the student should consult. The following conditions, he says, must be observed by every nation that wishes to extend its dominions: i. It must have strong fortified towns, and a martial population, well supplied with all the necessaries of war. ii. People must be lightly taxed. iii. It must have a numerous and prosperous yeomanry, from which to recruit the infantry, which is the strength of an army. iv. It must adopt a liberal policy of naturalisation, for a handful of foreigners can never control a large subject population. v. The practice of indoor and sedentary arts is enervating, and unfit men for war: it must, therefore, be handed over to foreigners. vi. The profession of arms must be the chief pursuit and pride of the people. vii. The people must be sensitive to injury and insult, and their laws and customs must sanction a declaration of war on a slight pretext. viii. A large standing army must be maintained, and kept in constant practice. ix. The nation must be powerful at sea. x. Valour should be stimulated by substantial and conspicuous rewards.

⁹⁷ There are many things in the world, which we cannot understand (see p. 379, l. 14, sq.), but which are known to God who governs the earth. Similarly, the proceedings of human governments are hidden from their subjects, but the proceedings of the subjects are, or ought to be, known to the government. For the quotation, see *Rev.* iv. 6.

⁹⁸ *In regard of, &c.*, considering the various means which they have of obtaining information.

who^{pp} being silent, when others contended to make demonstration of their abilities by speech, desired it mought be certified for his part, *That there was one that knew how to hold his peace.*

49. Notwithstanding, for the more public part of government, which is laws, I think good to note only one deficiency; which is, that all those which have written of laws, have written either as philosophers, or as lawyers, and none as statesmen. As¹ for the philosophers, they make imaginary laws for imaginary commonwealths, and their discourses are as the stars, which give little light because they are so high. For the lawyers, they write according to the states where they live what is received law, and not what ought to be law: for the wisdom of a lawmaker is one, and of a lawyer is another. For² there are in nature certain fountains of justice, whence all civil

^{pp} The story is told of Zeno. E.

¹ Cp. pp. 29-30, § 5.

² There are certain natural principles of justice and equity, on which the laws of all states (all civil laws) are based. The following quotation from the *De Aug.* will explain Bacon's meaning and object: "Laws should be determined by the rules and principles both of *natural law* and *policy*. Wherefore, let it be my present object to go to the fountains of justice and public expediency, and endeavour, with reference to the several provinces of law, to exhibit a character and idea of justice, in general comparison with which the laws of particular states and kingdoms may be tested and amended." Thus there are two points to be determined. i. What are 'the fountains of justice'? i.e. what was the original end and scope of law? If we can determine this, we can determine what principles must be common to *all* laws. ii. How are these common principles to be modified, to suit the needs of different countries? Bacon gives in five aphorisms 'the fountains of justice,' or 'natural law,' or 'natural equity,' (the three expressions are equivalent). i. Law is opposed to force, and laws are unjust if mere force prevails, ("might is right,") if malicious ensnarement can be practised under colour of law, or if the law itself is harsh. ii. The laws protect individuals: and men agree to uphold the laws, because of the interest which each man has in being protected; (cp. Hobbes). The laws will not be upheld, if those whom they endanger are more numerous than those whom they protect. iii. The laws will not be able to protect the rights of individuals, unless well administered. iv. Besides protecting private rights, the law must also regulate everything that affects the well-being of a state. v. The laws should aim at promoting the happiness of the citizens. To these five principles *all* laws must conform. He then propounds five tests, by which we may judge of the goodness or badness of laws; "that law may be considered good, which is certain in meaning, just in precept, convenient in execution, agreeable to the form of government, and productive of virtue in those that live under it." Some of these points

laws are derived but as streams : and like as waters do take tinctures and tastes from the soils through which they run, so do civil laws vary according to the regions and governments where they are planted, though they proceed from the same fountains. Again, the wisdom of a lawmaker consisteth not only in a platform³ of justice, but in the application thereof ; taking into consideration by⁴ what means laws may be made certain, and what are the causes and remedies of the doubtfulness and uncertainty of law ; by what means laws may be made apt and easy to be executed, and what are the impediments and

are considered in the text. In adapting the common principles of Law to a particular state, the law-maker must consider "the condition of society, the welfare of the people, their customs, and form of government."

My object in this note has been simply to explain Bacon's meaning. I cannot enter at length into the question of the origin of law, or of the relation of ethical to legal distinctions. For information on these points, students may consult Austen's *Jurisprudence*, or Maine's *Ancient Law*. I will content myself with saying that Bacon did not mean to commit himself to the theory that rights are created by law, and not based on moral distinctions, or that the origin of law is to be looked for in self-interest,—theories afterwards propounded by Hobbes. Questions of this kind were not present to his mind. His object was a practical one, viz., to get good laws, well-defined, and well-administered. He himself had made proposals to Elizabeth, which he afterwards repeated to James, for a reform and codification of English law. His 'fountains of justice' are based simply on his perceptions of what the law does actually effect. It protects private rights, it operates through fear, and if it be good, it is to the interest of the people to support it. Bacon proposes to consider how the law may be so framed as most effectually to secure these ends.

³ A *platform*, a pattern.

⁴ "Certainty is so essential to law, that law cannot even be just without it. Uncertainty of laws is of two kinds, the one where no law is prescribed ; the other, where the law is ambiguous and obscure. When a case arises that the law has not provided for, the remedy or supplement is threefold, namely, by reference to similar cases, by employment and examples which have not yet grown into law, and by jurisdictions, whether civil or criminal, empowered to decide according to the arbitration of a good man, and sound discretion. Obscurity of laws arises from four causes : either from excessive accumulation of laws, especially if they be mixed with such as are obsolete, or from an ambiguity or want of clearness in the drawing of them, or from negligent and ill-ordered methods of interpreting law, or from a contradiction and inconsistency of judgements. The remedies for this obscurity are constant reviews of the law, the repeal of obsolete laws, the publication of new and expurgated digests of law, a simple and intelligible system of drawing up laws, and correct reports and elucidations of judgments."—*De Aug.*

remedies in the execution of laws; what⁵ influence laws touching private right of *property* have into the public state, and how they may be made apt and agreeable; how laws are to be penned and delivered, whether in texts or in acts, brief or large, with preambles, or without⁶; how they are to be pruned and reformed from time to time, and what is the best means to keep them from being too vast in volumes, or too full of multiplicity and crossness⁷; how they are to be expounded, when upon causes emergent⁸ and judicially

⁵ Cp. *Essay 56*. "Many times the things deduced to judgement may be questions of property, when the reason and consequence thereof may trench to point of estate. I call matter of estate not only the parts of sovereignty, but whatsoever introduceth any great alteration or dangerous precedent: or concerneth manifestly any great portion of people." For instance, a question frequently debated in Bacon's time was the right of the sovereign to grant monopolies to individuals. These monopolies were complained of for two reasons, first, as involving an illegitimate exercise of the prerogative; secondly, as burdensome to the subject. In this case 'laws touching private right of property have an influence into, i.e. on, the state': for if the law supported the claims of monopolists, it legalised the exercise of the royal prerogative, and *vice versa*.

⁶ By laws published 'in texts' or '*large*', i.e. at length, or '*with preambles*', he means laws introduced by a prefatory statement of the reasons for which they are enacted, together with explanations and illustrations of the way in which they are to be administered, and the kind of cases to which they are to be applied. By laws published '*in acts*', or '*brief*', or '*without preamble*', he means laws, which consist simply of a series of enactments, without any illustrations, or statement of reasons. Preambles, he says, generally lead to contentions about words; on the other hand, a too concise and affected brevity renders a law difficult to understand, and so enables a judge to put his own interpretation on it. Law-makers should aim at a mean, and look out for a well-defined generality of words, which though it does not attempt to express all the cases comprehended, yet excludes with sufficient clearness the cases not comprehended. Preambles are generally necessary, not so much to explain the law, as to persuade the Parliament to pass it, and also to satisfy the people. But law-makers should avoid preambles as much as possible, and let the law commence with the enactment.—*De Aug.*

⁷ *Crossness*, contradiction. In 1607, Bacon proposed in the House of Commons that the laws of England should be reviewed and recompiled: for, he said, 'This continual heaping up of laws without digesting them maketh but a chaos and confusion, and turneth the laws many times to become but snares for the people.'

⁸ *Emergent*, used in its literal sense of *arising*. The meaning is, 'when the decision of a court on a point not previously decided is to be taken as authoritative.'

discussed, and when upon responses⁹ and conferences¹⁰ touching general points or questions how they are to be pressed, rigorously or tenderly; how they are to be mitigated by equity and good conscience, and whether¹¹ discretion and strict law are to be mingled in the same courts

⁹ *Responses*, Bacon is thinking of the ‘*responsa prudentum*,’ i.e. answers of learned men, which were among the sources of Roman law. See Maine’s *Ancient Law*, p. 33. Bacon says in the *De Aug.* that some means should be devised for solving and clearing away the doubts and difficulties which from time to time arise, but that he does not think it right that *the answers of learned men*, whether advocates or doctors of law, given to those who ask their advice on a point of law, should be taken as authoritative. He mentions and disapproves of the practice, which was probably then resorted to, of bringing into court and trying an imaginary case, with a view to getting a decision on a doubtful point of law. Mr. Ellis says, that the practice in modern times is to refer points of law directly to the judges, who, after hearing counsel, certify their opinion to the Chancellor. This is in accordance with a plan which Bacon himself recommends.

¹⁰ *Conferences*, In Bacon’s time it was the custom for the Crown, before commencing a prosecution, to consult the judges as to whether the evidence was sufficient to render a successful prosecution probable. The practice was resorted to because the Crown was discredited in public estimation, if a person whom it prosecuted was acquitted. Before the Earl of Somerset was brought to trial in 1616, the evidence for the prosecution was laid before the judges, and their opinions were asked whether a conviction could be secured under the law. See Spedding’s *Francis Bacon and his Times*, Vol. 2, p. 98, sq.

¹¹ In the *De Aug.* Bacon proposes the establishment of separate courts, which he calls ‘Prætorian Courts,’ which should determine by the judgement and discretion of a conscientious man, in civil causes which require relief. Discretion in the administration of the law must be allowed, because the law cannot provide for all cases, but is adapted to meet such as ordinarily occur. The ‘Prætorian Courts,’ therefore, were to have power to abate the rigor of the law, and to supply its defects. For if relief is due to a person whom the law has neglected, much more is it due to one whom it has injured. He prescribes certain conditions, to prevent the abuse by these courts of their authority. As Mr. Spedding says, Bacon’s description of the Prætorian courts is a description of the Court of Chancery, as he thought it ought to be. Writing in 1621 of the Court of Chancery, Bacon says that ‘it had the *praetorian* power for equity.’ The name ‘prætorian’ is taken from a Roman magistrate called the *Prætor*, whose decisions constituted Roman equity. Together with the Prætorian courts, Bacon proposed to establish ‘Censorian courts,’ invested with a discretionary power in *criminal* cases. The description of the ‘Censorian courts’ is a description of the Star Chamber, as he thought it ought to be. In the same paper in which he describes the Chancery as having the *prætorian* power for equity, he describes the Star Chamber as ‘having the *censorian* power for offences under the degree of capital.’ The censor was a Roman

or kept apart in several courts; again, how the practice, profession and erudition of law is to be censured¹³ and governed; and many other points touching the administration, and (as I may term it) animation of laws. Upon which I insist the less, because I purpose (if God give me leave),¹³ having begun a work of this nature in aphorisms, to Of wisdom in legislation, or the fountains of equity.

propound it hereafter, noting it in the mean time for deficient.

50. And for your Majesty's laws of England, I could say much of their dignity, and somewhat of their defect; but they cannot but excel the civil laws¹⁴ in fitness for the government: for the civil law was a *gift meant for different uses*; it was not made for the countries which it governeth. Hereof I cease to speak, because I will not intermingle matter of action with matter of general learning.

magistrate, invested with a large jurisdiction, and possessed of very great authority in matters relating to morality. See Spedding's *Francis Bacon and his Times*, Vol. 2, p. 381.

¹³ Censured, regulated. On the subject of legal education, see *De Aug.* Bk. 8, Aph. 79—88. Ellis and Spedding's Edn., Vol. 5, p. 105.

¹⁴ He refers to the treatise given in the *De Aug.* With regard to Bacon's proposals generally, we must remember that the Star Chamber is spoken of with the greatest respect by competent writers of his own time. Before condemning his 'Praetorian Courts' on account of the indefiniteness of the powers assigned to them, 'we must not forget how great an evil the Court of Chancery has become in consequence of the rules by which its discretion has been defined and limited. The nearest approach to *certainty* attained by the existing system appears to be the certainty of damage to both parties.' J. S. The justice of Bacon's remarks as to the necessity of a ~~good~~ digest of English law has, I imagine, always been acknowledged, even if his advice has not been acted on. When Sir Robert Peel, in 1826, moved for leave to bring in a bill for the consolidation of the laws relating to theft, he referred to a paper written by Bacon in 1616 on the consolidation of the laws, in these words, "The lapse of two hundred and fifty years has increased the necessity of the measure which Lord Bacon then proposed, but it has produced no argument in favour of the principle, no objection adverse to it, which he did not anticipate." (Quoted by Spedding.)

¹⁵ The civil law, the Roman law, which was adopted either wholly or in part by Scotland and some of the Continental nations. For the government, viz., of England. The English law, being indigenous, is better fitted for the country than any foreign law could be. The student will naturally be reminded of the difficulty of accommodating English law to the requirements and habits of India.

XXIV. Pp. 386—7. Bacon has now said all that he has to say on the subject of philosophy. Looking back upon all that he has said, he seems to himself like one who tunes an instrument for a skilled musician to play on. He has discovered nothing himself, but has only prepared the way for cleverer men. The circumstances of the age are all favorable to the advancement of learning, and, if men will take advantages of their opportunities, and use their strength aright, he anticipates that the learning of modern times will surpass the learning both of Greece and Rome. For his own doctrines he asks only an attentive study, and trusts that, if rejected by his own age, they may yet be accepted by posterity.

XXIV. **T**HUS have I concluded this portion of learning touching civil knowledge¹⁵; and with civil knowledge have concluded human philosophy; and with human philosophy, philosophy in general. And being now at some pause,¹⁶ looking back into that I have passed through, this writing seemeth to me (*if the image be true*) as far as a man can judge of his own work, not much better than that noise or sound which musicians make while they are in¹⁷ tuning their instruments: which is nothing pleasant to hear, but yet is a cause why the music is sweeter afterwards. So have I been content to tune the instruments of the Muses,¹⁸ that they may play that have better hands. And surely, when I set before me the condition of these times, in which learning hath made her third visitation or circuit in all the qualities thereof¹⁹; as the excellency and vivacity of the wits of this age; the noble helps and lights which we have²⁰ by the travails of ancient writers; the art of printing, which communicateth books to men of all fortunes; the openness of the world by navigation, which hath disclosed multitudes of experiments, and a mass of natural history; the leisure wherewith these times abound, not employing men so generally in civil²¹ business, as the states of Grecia did, in respect of their popularity,²² and the state of Rome, in respect of the greatness of their monarchy; the²³ present

¹⁵ *Civil knowledge*, p. 339, n. 94.

¹⁶ *Being now at some pause*, pausing for a while. Bacon is fond of saying that he pointed out to others the path which they should follow. ‘He rang the bell which called the other wits together.’

¹⁷ *In*, engaged in. We should omit it.

¹⁸ *The Muses*, p. 112, n. 50. *That have better hands*, that are more skilful.

¹⁹ *In all the qualities thereof*, in all kinds of learning. For this use of *thereof*, cp. p. 73, n. 50. With what follows cp. p. 137, §§ 13—14.

²⁰ *Civil*, political.

²¹ *In respect of their popularity*, because they were democracies.

²² Peace between England and Spain had just been concluded. Bacon’s

disposition of these times at this instant to peace ; the consumption of all that ever can be said in controversies of religion, which have so much diverted men from other sciences ; the perfection of your Majesty's learning, which as a phoenix^{**} may call whole vallies of wits to follow you ; and the inseparable propriety^{***} of time which is ever more and more to disclose truth ; I cannot but be raised to this persuasion that this third period of time will far surpass that of the Grecian and Roman learning : only if^{**} men will know their own strength, and their own weakness both ; and take, one from the other, light of invention, and not fire of contradiction ; and esteem of the inquisition of truth as of an enterprise, and not as of a quality or ornament ; and employ wit and magnificence to things of worth and excellency, and not to things vulgar and of popular estimation. As for my labours, if any man shall please himself or others in the reprehension of them, they shall make that ancient and patient request, *Strike, but hear me* ; let men reprehend them, so^{**} they observe and weigh them. For the appeal is lawful (though it may be it shall not be needful) from the first cogitations of men to their second, and from the nearer times^{**} to the times further off. Now let us come to that learning, which both^{**} the former times were not so blessed as to know, sacred and inspired divinity,^{**} the Sabbath and port of all men's labours and peregrinations.

XXV. Pp. 389—End. The dogmas of theology are to be accepted without question, and it is the triumph of faith to accept that which is repugnant to reason. Faith is a higher state of mind than knowledge: for in faith, we yield not to the senses, but to a higher mind. Neither the mysteries of

expectation that theological controversy had ceased has not been fulfilled, nor does it appear likely to be fulfilled.

^{**} A *phoenix*, a fabulous bird concerning which various stories are told. Bacon alludes to the tradition that at long intervals it makes its appearance in Egypt, followed by a number of other birds which are attracted by the strangeness of its appearance. See Tac. *Ann.* vi. 28. *Vallies*, flights; from the French *vôlée*, a flight of birds. W.

^{**} Propriety, p. 139, n. 51; cp. p. 54, n. 40.

^{**} Only if, we should say 'if only,' i.e. provided that.

^{**} So, provided that.

^{**} From the nearer times, &c., from the present times to posterity.

^{**} Which both, &c., which neither of the former times, viz., the Greek and Roman, was fortunate enough to know.

^{**} Divinity, p. 161, n. 79.

religion nor the precepts of the moral law are discoverable by reason. Of the latter we have by nature some imperfect apprehension; for a full knowledge of them we must go to revelation. The Christian religion, however, permits the exercise of the reason, within certain limits. It is not like the heathen religion, which left every thing to reason, nor like Mahomedanism, which prohibits the use of reason altogether. We are allowed to exercise our reason either to understand the mysteries of religion, or in inferring doctrines and precepts from them. We must not however question the mysteries themselves. There are some precepts, even of human law, which we are not allowed to question, though we are at liberty to deduce the consequences which flow from them. Bacon regrets that there is no treatise defining the limits within which the reason may be employed in the sphere of theology. Such a treatise would put an end to all controversy on matters which do not admit of controversy, and to the frequent attempts that are made to raise mere opinions and inferences into dogmas. The two principal points which theology has to consider are the *matter* and the *nature* of revelation. Under the latter head it has to consider the nature and limits of authority, the distinction between essential and non-essential beliefs, and the proper method of interpretation. Interpretation may proceed in two ways: it may either be based on the actual text; or the doctrines and teaching of the Bible may be taken from summaries of the contents of the Bible. The method of exhibiting theological doctrines in summaries was adopted by the Schoolmen, and it is a bad one. They aimed at brevity, and ended in obscurity. Countless volumes have been written to explain their meaning. They aimed at certainty, and acquired it only in appearance. Their doctrines were consistent with themselves, but not necessarily with the Scriptures, from which they were not immediately drawn. They aimed at completeness, which in theology is unattainable. Much in the character and action of God must always remain unintelligible to us. The text of Scripture is not to be interpreted as ordinary texts are. The Scriptures contain mysteries, which can be only imperfectly explained. God did not intend that men should be able completely to interpret the mysteries. All attempts to educe a system of natural philosophy from the Scriptures are to be condemned. The Scriptures were not intended to teach philosophy. The literal sense of the Scriptures is not alone to be considered, for they were written, not for any one generation, but for all ages. The moral or figurative sense is often as important as the literal sense. There is no lack of books on the interpretation of Scripture. Bacon would like to see a collection published of the excellent observations that are made, from time to time, in sermons on particular texts of Scripture. The *matter* of revelation is matter either of doctrine or ritual, of which the latter is but the outward expression of the former. The heathen religion had no doctrines, but only ritual. Under the head of doctrine comes faith, as expressed in the creeds of the Church, and the kinds and degree of sin. Under the head of ritual come the forms of worship and Church government. Theology may occupy itself either with the exposition of the truth, or the refutation of falsehood. Bacon distinguishes three forms of false religion, heresy, idolatry, and witchcraft. There is no

branch of theology which has not been fully treated of. With the whole of this passage, cp. p. 13, and pp. 157—8, § 1.

XXV. i. **T**HE prerogative of God extendeth as well to the reason as to the will of man ; so that as we are to obey his law, though we find a reluctance^{so} in our will, so we are to believe his word, though we find a reluctance in our reason. For if we believe only that which is agreeable to our sense,^{s1} we give consent to the matter, and not to the author ; which is no more than we would do towards a suspected and discredited witness ; but that faith which was accounted to Abraham for righteousness was of such a point^{s2} as whereat Sarah laughed, who therein was an image of natural reason.

2. Howbeit (if we will truly consider of it) more worthy it is to believe than to know as we now know. For in knowledge man's mind suffereth from^{s3} sense ; but in belief it suffereth from spirit, such one as it holdeth for more authorised than itself, and so suffereth from the worthier agent. Otherwise it is of the state of man glorified ; for then faith shall cease, and we shall know^{s4} as we are known.

3. Wherefore we conclude that sacred theology (which in our idiom we call divinity) is grounded^{s5} only upon the word and oracle

^{so} *A reluctance*, p. 67, n. 10.

^{s1} *Sense*, i.e. reason. We should believe the matter of Scripture because it comes from God, not because it approves itself to reason. In the *De Aug.* he says more distinctly, ‘The more discordant and incredible the divine mystery is, the more honour is shown to God in believing it, and the nobler is the victory of faith.’

^{s2} *Of such a point*, of such a kind. In the *De Aug.* it is ‘was about such a matter that Sarah laughed at it.’ When Abraham was more than a hundred years old and his wife past the age of child-bearing, God told him that he should have a son. Sarah ridiculed the idea, but Abraham believed; and Paul says, that ‘his faith was accounted to him for righteousness.’ The divine mysteries seem as ridiculous to the ‘natural reason’ as God’s promise did to Sarah.

^{s3} *Suffereth from*, is influenced by, or yields to. Our ordinary beliefs are forced upon us by the evidence of the senses ; our religious beliefs are accepted on the higher authority of the divine word.

^{s4} *We shall know*, &c., The words are taken from Paul 1 Cor. xiii. 12. We are perfectly known to, or understood by God, but God is a mystery to us now, but, when we are glorified, i.e. in heaven, the state of faith, i.e. of belief without reason, or in the face of reason, will cease, and all that is now mysterious will be made intelligible.

^{s5} *Grounded*, based. *The light of nature*, p. 151, n. 29 ; cp. p. 390, l. 11.

of God, and not upon the light of nature: for it is written, *The³⁶ Heavens declare the glory of God*, but it is not written, *The Heavens declare the will of God*, but of that it is said, *To the law and the testimony: if they do not according to this word, &c.* This holdeth not only in those points of faith which concern the great mysteries of the Deity, of the creation, of the redemption,³⁷ but likewise those which concern the law moral truly interpreted: *Love³⁸ your enemies: do good to them that hate you: Be like to your heavenly Father, that suffereth his rain to fall upon the just and unjust.* To this it ought to be applauded,³⁹ *The words do not sound like those of man:* it is a voice beyond the light of nature. So we see the heathen poets, when they fall upon⁴⁰ a libertine passion, do still⁴¹ expostulate with laws and moralities, as if they were opposite and malignant to nature; *The envious laws forbid what nature allows.* So said Dendamis the Indian unto Alexander's messengers, that he had heard somewhat of Pythagoras,⁴² and some other of the wise men of Grecia, and that he held them for excellent men: but that they had a fault, which was that they had in too great reverence and veneration a thing they called law and manners.⁴³ So it must be confessed, that a great part of the law moral is of that perfection whereunto the light of nature cannot aspire: how then is it that man is said to have, by the light and law of nature, some notions and conceits of virtue and vice, justice and wrong, good and evil? Thus, because the light of nature is used in two several⁴⁴ senses; the one, that which springeth from reason,

³⁶ Psalm, xix. 1. The next quotation is from *Isaiah*, viii. 20. See pp. 157-8, § 1. We can judge of God's power from nature, but not of his will.

³⁷ The redemption, Christ, by his death, redeemed man from the consequences entailed by the sin of Adam. Hence, in the Christian theology, the death of Christ is called 'the Atonement.'

³⁸ Cp. p. 335, n. 81.

³⁹ To this it ought to be applauded, To these words the applause may be well applied, "that they do not sound human." Virgil, *Aen.* i. 328.

⁴⁰ When they fall upon, &c., when they happen to be under the influence of an immoral passion.

⁴¹ Still, constantly. *Moralities*, the precepts of moral philosophy. The argument is, that if the precepts of ordinary morality seemed unnaturally strict to the heathen, it is likely that the precepts of the divine code will appear so to us, for they are still stricter than the precepts of ordinary morality. The quotation which follows is from Ovid, *Metam.* x. 330.

⁴² Pythagoras, p. 202, n. 10. The story is told by Plutarch.

⁴³ Manners, morals.

⁴⁴ Several, distinct.

sense, induction, argument, according to the laws of heaven and earth⁴⁸; the other, that which is imprinted upon the spirit of man by an inward instinct, according to the law of conscience, which is a sparkle⁴⁹ of the purity of his first estate; in which latter sense only he is participant of some light and discerning touching the perfection of the moral law: but how sufficient to check the vice, but not to inform the duty. So then the doctrine of religion, as well moral as mystical,⁵⁰ is not to be attained but by inspiration and revelation from God.

4. The use notwithstanding of reason in spiritual things, and the latitude⁵¹ thereof, is very great and general: for⁵² it is not for nothing that the apostle calleth religion *our reasonable service of God*; insomuch as the very ceremonies and figures of the old law were full of reason and signification, much more than the ceremonies of idolatry and magic, that are full⁵³ of non-significants and surd characters. But most specially the Christian faith as in all things so in this, deserveth to be highly magnified; holding and preserving the golden mediocrity⁵⁴ in this point between the law of the heathen and the law of Mahumet, which have embraced the two extremes. For⁵⁵ the

⁴⁸ *The laws of heaven and earth*, the laws of nature, to which both the doctrinal and moral parts of the Bible seem repugnant. See p. 393, l. 3, sq.

⁴⁹ *A sparkle*, p. 367, n. 2. *Estate*, the condition of innocence which preceded the sin of Adam. Before the fall, man knew intuitively what he ought to do, and what he ought not to do. After the fall he lost this perfect intuition. Man has now only vague and imperfect intuitions, sufficient to tell him that certain actions are wrong, (to check the vice,) but not sufficient to inform him fully of his duty (to inform the duty). For a perfect knowledge of what our duty is we must go to the Bible. See p. 227, n. 62. The student will notice that Bacon here, as in many cases, is on the threshold of questions which, in the next generation, were to be explicitly propounded and discussed, the standard of conduct, the origin of the moral faculty, the origin and extent of moral intuitions, and the means of supplementing them. Bacon had not explicitly realised these questions. He had not separated ethics from theology, and his theory of conduct, in so far as he can be said to have had a definite theory, is based confusedly on intuition, reason, and Scripture.

⁵⁰ *As well moral as mystical*, see p. 390, l. 5, sq.

⁵¹ *The latitude*, the extent to which it may be used, cp. p. 76, n. 73.

⁵² *Romans* xii. 1. For what follows, see p. 68, n. 21.

⁵³ *That are full, &c.*, i.e., which are in many respects unmeaning, for non-significants, cp. p. 267, l. 3. *Surd* means literally 'having no sound,' and then, 'unmeaning.'

⁵⁴ *The golden mean*. The expression is taken from an ode of Horace.

⁵⁵ Cp. p. 148, n. 23. By 'the heathen' Bacon means, as always, the Greeks and Romans. Theological speculation had little interest for the

religion of the heathen had no constant belief or confession, but left all to the liberty of argument; and the religion of Mahumet on the other side interdicteth argument altogether: the one having the very face of error, and the other of imposture: whereas the Faith doth both admit and reject disputation with difference.⁵³

5. The use of human reason in religion is of two sorts: the former, in the conception and apprehension of the mysteries of God to us revealed; the other, in the inferring and deriving⁵⁴ of doctrine and direction thereupon. The former extendeth to the mysteries themselves; but how? by way of illustration, and not by way of argument. The latter consisteth indeed of probation⁵⁵ and argument. In the former we see God vouchsafeth to descend to our capacity, in the expressing of his mysteries in sort as⁵⁶ may be sensible unto us; and doth graft his revelations and holy doctrine upon the notions of our reason, and⁵⁷ applieth his inspirations to open our understanding, as the form of the key to the ward of the lock. For the latter, there is allowed us an use of reason and argument, secondary and respective,⁵⁸ although not original and absolute. For after the articles and principles of religion are placed and exempted from examination of

Greeks, who devoted themselves principally to ethical questions. The religion both of the Greeks and the Romans consisted mainly of ceremonial observances, and contained scarcely any theology in our sense of the term.

⁵³ *With difference*, with just limitations. We should rather say, 'with discrimination.'

⁵⁴ *Deriving*, deducing, cp. p. 52, n. 26; and cp. *derivations*, below.

⁵⁵ *Probation*, proof.

⁵⁶ *In sort as*, in a way which. *Sensible*, intelligible. *Graft*, graft. The ideas employed in the communication of the divine mysteries are ideas which are familiar to our reason.

⁵⁷ "On the other hand," he says in the *De Aug.*, "we ought to enlarge our understanding, that it may be capable of receiving and apprehending the mysteries, enlarging our minds to the grandeur of the mysteries, and not contracting the mysteries to the narrowness of the mind."

⁵⁸ *Respective*, dependent. Opposed to 'absolute reason.' We may argue, but only from certain premisses which must be taken for granted. Bacon's rule is an impracticable one, as the history of Protestantism shows; for men will never agree as to what is, and what is not, to be exempted from argument. If private judgement is to be exercised at all, we can set no limits to the exercise of it. The Catholic Church knows this, and solves the difficulty, in the only way in which it can be solved, viz., by interdicting private judgement altogether, and making the Church the sole authority on matters of faith and conduct.

reason, it is then permitted unto us to make derivations and inferences from and according to the analogy of them, for our better direction. In nature this holdeth not; for⁵⁹ both the principles are examinable by induction, though not by a medium or syllogism; and besides, those principles or first positions have no discordance with that reason which draweth down and deduceth the inferior positions. But yet it holdeth not in religion alone, but in many knowledges, both of greater and smaller nature, namely, wherein there are not only *principles* but *arbitrary rules*; for in such there can be no use of absolute reason. We see it familiarly in games of wit, as chess, or the like. The draughts⁶⁰ and first laws of the game are positive, but how? merely *by convention*, and not examinable by reason; but then how to direct our play thereupon with best advantage to win the game, is artificial and rational.⁶¹ So in human laws there be many grounds and maxims which are *rules of law*, positive upon authority, and not upon reason, and therefore not to be disputed: but what is most just, not absolutely but relatively, and according to those maxims, that affordeth a long field of disputation. Such therefore is that secondary reason, which hath place in divinity, which is grounded upon the *orders* of God.

6. Here therefore I note this deficiency, that there hath not been,

Of the legitimate use of human reason in divine matters. to my understanding,⁶² sufficiently inquired and handled the true limits and use of reason in spiritual things, as a kind of divine dialectic⁶³: which for that it is not done, it seemeth to me a thing usual, by pretext

of true⁶⁴ conceiving that which is revealed, to search and mine into that which is not revealed; and by pretext of enucleating⁶⁵ inferences and contradictories, to examine that which is positive. The⁶⁶ one sort falling into the error of Nicodemus, demand-

⁵⁹ See pp. 248-9, § 1. The first premisses of our reasonings in physics are established by induction: in theology they are taken on authority. The premisses of theology are repugnant to the reason which deduces their consequences. This is not the case in physics, where both premisses and conclusions are established by, and are in accordance with reason.

⁶⁰ *Draughts*, rules. *Positive*, not to be questioned or disputed.

⁶¹ *Is artificial and rational*, is a matter demanding skill and the exercise of reason.

⁶² *To my understanding*, in my opinion.

⁶³ *Dialectic*, logic. *Which for that it is*, i.e. and because this is.

⁶⁴ *True*, rightly.

⁶⁵ *Enucleating*, extracting, literally, taking the kernel out of a nut.

⁶⁶ Christ told a Jew, called Nicodemus, that a man, who wished to enter

ing to have things made more sensible than it pleaseth God to reveal them, *How can a man be born when he is old?* The⁶⁷ other sort into the error of the disciples, which were scandalized at a show of contradiction, *What is this that he saith unto us? A little while and ye shall not see me, and again a little while and ye shall see me, &c.*

7. Upon this I have insisted the more, in regard of the great and blessed use thereof; for this point well laboured and defined of would in my judgement be an opiate to stay and bridle⁶⁸ not only the vanity of curious speculations, wherewith the schools labour,⁶⁹ but the fury of controversies, wherewith the church laboureth. For it cannot but open men's eyes, to see that many controversies do merely pertain to that which is either not revealed or positive⁷⁰; and that many others do grow upon weak and obscure inferences or derivations⁷¹: which latter sort, if men would revive the blessed style of that great doctor⁷² of the Gentiles, would be carried thus, *I, not the Lord;* and again,

the kingdom of God, must be born again, meaning that his character must change, and that he must become, as it were, a new man. Nicodemus understood him literally, and asked how a man could be born twice. *Sensible*, p. 392, n. 56.

⁶⁷ When Christ told his disciples that for a while they should not see him, but that, after a time, they should see him, he meant to say that, during their life, they would suffer for their belief in him, but that they would be restored to him, and be happy with him, in heaven. His words seemed to them to be contradictory, and they pressed for an explanation of them. In this they did wrong. We must not seek to penetrate the meaning of God's words, even if they seem to us inconsistent and contradictory.

⁶⁸ *To stay and bridle*, the words are not appropriate to the metaphor. In the *De Aug.* he says, 'It would act as an opiate in lulling to sleep the foolish speculations of the schools, and mitigating the disturbances caused by controversies in the Church.'

⁶⁹ *Labour*, are afflicted.

⁷⁰ *Positive*, p. 393, n. 60. Controversies generally relate either to things which God did not intend men to know, or to things about which he did not intend them to argue.

⁷¹ *Derivations*, p. 392, n. 54.

Doctor, teacher, viz., Paul. Paul carefully distinguished his own opinions from the direct teaching of God, and did not attempt to give to the former the authority, which belongs properly to the latter. Theologians do not imitate his good example. They raise their own opinions into dogmas, and curse those who refuse to accept them.

in my opinion, in opinions and counsels, and not in positions⁷³ and oppositions. But men are now over-ready to usurp the style, *not I, but the Lord*; and not so only, but to bind it with the thunder and denunciation of curses and anathemas,⁷⁴ to the terror of those which have not sufficiently learned out of Salomon, that *The causeless curse shall not come*.⁷⁵

8. Divinity⁷⁶ hath two principal parts; the matter informed or revealed, and the nature of the information or revelation: and with the latter we will begin, because it hath most coherence with that which we have now last handled. The nature of the information consisteth of three branches; the limits of the information, the sufficiency of the information, and the acquiring or obtaining the information. Unto the limits of the information belong these considerations, how⁷⁷ far forth particular persons continue to be inspired; how far forth the Church is inspired; and how far forth reason may be used: the last point whereof I have noted as deficient. Unto the sufficiency of the information belong two considerations; what points of religion are fundamental, and what perfective,⁷⁸ being

⁷³ *Positions*, p. 44, n. 76. *Oppositions*, disputes, which, as he says in the 3rd *Essay*, are often about things so trifling as not to be worth disputing about, or about mere words.

⁷⁴ *Anathemas*, p. 300, n. 29.

⁷⁵ *Come*, i.e. take effect. *Prov. xxvi. 2.*

⁷⁶ *Divinity*, see p. 389, l. 17.

⁷⁷ The Catholics believe that the gift of inspiration is still continued to the Church, and that, therefore, the Church, as represented by its head, the Pope, is infallible in matters of doctrine and morals. See above n. 58. The question of authority in matters of doctrine was a burning one in Bacon's days. The English had separated themselves from the Catholic Church. How were the doctrines of the English Church to be settled? Was unlimited freedom of judgement to be allowed, or were the doctrines of the first Protestants to form the creed of the new Church? With the whole of this passage the student should compare Bacon's 3rd *Essay*, 'of Unity in Religion.'

⁷⁸ *Perfective*, capable of being perfected. Bacon frequently insists on the necessity of distinguishing points, on which it is essential that all Christians should agree, from points on which a difference of opinion is admissible. These latter are not definitely settled by the Bible, but are left to be worked out by men, on the basis of what is said about them in the Bible, (on one and the same foundation). For instance, the Bible says that men must be chaste, but it does not actually forbid any class of men to marry. Celibacy, therefore, is not 'a point of religion fundamental.' Protestants should not quarrel with Catholics for forbidding a priest to marry, nor Catholics with Protestants for

matter of further building and perfection upon one and the same foundation ; and again, how the gradations⁷⁹ of light according to the dispensation of times are material to the sufficiency of belief.

9. Here again I may rather give it in advice than note it as deficient, that the points fundamental, and the points of further perfection only ought to be with piety and wisdom distinguished : a subject tending to much like end as that I noted before ; for as that other were likely to abate the number of controversies, so this is like to abate the heat of many of them We⁸⁰ see Moses when he saw the Israelite and the Egyptian fight, he did not say, *Why strive you?* but drew his sword and slew the Egyptian : but when he saw the two Israelites fight, he said, *You are brethren, why strive you?* If the point of doctrine be an Egyptian it must be slain by the sword of the spirit,⁸¹ and not reconciled ; but if it be an Israelite, though in the wrong, then, *Why strive you?* We see of the fundamental points, our Saviour penneth the league thus⁸² *He that is not with us is against us;* but of points not fundamental, thus, *He that is not against us is with us.* So⁸³ we see the coat of our Saviour was entire without seam,

allowing him to marry. Each man must interpret the rule of chastity according to his conscience. So also diversity in matters of ceremonial must be allowed, since the form of worship is not defined in the Bible.

⁷⁹ How the gradations, &c., i.e. whether men's religious beliefs should not vary with their knowledge. We might condemn as insufficient, in the nineteenth century, a form of belief which we should think it sufficient for men to entertain in an age of ignorance.

⁸⁰ Exodus ch. 2. The Church must wage war against those who are Egyptians, i.e. who are opposed to it on 'points of religion fundamental' : for, as Christ said, 'he that is not with us, i.e. with the members of the Christian Church, on points fundamental, is an enemy of the Church.' But the Church must be reconciled to those who are Israelites, i.e. who differ from it merely on un-essential points, for, as Christ said, 'he that is not against us, i.e. who is not opposed to the Church on essential points, is a friend to the Church.' The enemies of the Church are called Egyptians, and the members of the Church Israelites, because the Egyptians held in captivity the Jews, who were the chosen people of God.

⁸¹ The sword of the spirit, the authority of the Church. Cp. 'There be two swords among Christians, the spiritual and the temporal, and both have their due office and place in the maintenance of religion.'—Essay 3.

⁸² Penneth the league, lays down the conditions, by which the Church is to be bound in its relations with non-conformists.

⁸³ Bacon frequently uses this illustration. It is said in the Bible that

and so is the doctrine of the scriptures in itself; but the garment of the church was of divers colours and yet not divided. We⁸⁶ see the chaff may and ought to be severed from the corn in the ear, but the tares may not be pulled up from the corn in the field. So as it is a thing of great use well to define what and of what latitude those points are, which do make men merely⁸⁵ aliens and disincorporate from the Church of God.

10. For⁸⁶ the obtaining of the information, it resteth upon the true and sound interpretation of the scriptures,⁸⁷ which are the fountains of the water of life. The interpretations of the scriptures are of two sorts; methodical,⁸⁸ and solute or at large. For this divine water,

Christ's coat was made of one piece, and was without a seam, but that the garment of the Queen, who is made to represent the Church, was of divers colours. The garment of the Church should be without seam, but, at the same time, of divers colours; i.e. there must be no divisions in the Church on points fundamental, but there may be great differences on matters non-essential.

⁸⁶ You may thresh out the chaff from the ripened corn, but you must not weed out the tares while the corn is standing, otherwise you will root out the corn with the tares. So, you may exclude from the Church those who are heretics on points fundamental, but, if you banish those who differ from the Church merely on non-essential points, you will banish those who might have been good and useful members of the Church. The metaphor is suggested by one of Christ's parables. See *Math. xiii. 24, sq.*

⁸⁵ Merely, p. 123, n. 40.

⁸⁶ He explains in the *De Aug.* that he is not talking of the authority, but of the *method*, of interpretation. The ground of authority, he says, is the consent of the Church.

⁸⁷ Christ compares his teaching to a fountain, of which 'whosoever drinketh shall never thirst again.'—*John iv. 13, sq.*

⁸⁸ Methodical, exhibiting theology in the form of a complete science. Cp. p. 58, n. 61; cp. p. 398, l. 8, 'divinity hath been reduced into an art.' The 'method solute' goes to the fountain head, (i.e. interprets the actual text of scripture,) instead of first forcing the water into a cistern, (i.e. exhibiting the contents of the text in a summary,) from which the water may be drawn as it is wanted, (i.e. from which summary men are to derive their knowledge of the doctrine and precepts of the Bible). We may refer, for example, to Thomas Aquinas' '*Sum of Theology*,' which is an encyclopædia of scholastic divinity. The work is cast into three divisions. Under the first are treated the arguments for the existence of God, now distinguished as cosmological, because based on the evidence of causation and order in the universe: the divine nature and attributes: the Trinity: the creation of angels, the physical world and mankind: the divine Providence and government. Under the second, the end for which man was created: the nature and causes of his actions: his virtues and vices. Under the third, the Incarnation, its mode and consequences: the seven

which excelleth so much that of Jacob's well,⁸⁰ is drawn forth much in the same kind⁸⁰ as natural water useth to be out of wells and fountains ; either it is first forced up into a cistern, and from thence fetched and derived for use ; or else it is drawn and received in buckets and vessels immediately where it springeth. The former sort whereof, though it seem to be the more ready, yet in my judgement is more subject to corrupt.⁸¹ This is that method which hath exhibited unto us the scholastical divinity ; whereby divinity hath been reduced into an art, as into a cistern, and the streams of doctrine or positions fetched and derived from thence.

II. In this men have sought three things, a summary brevity, a compacted strength and a complete perfection ; whereof the two first they fail to find, and the last they ought not to seek. For as to brevity, we see in all summary methods, while men purpose to abridge, they give cause to dilate.⁸² For the sum or abridgement by contraction becometh obscure ; the obscurity requireth exposition, and the exposition is deduced into large commentaries, or into common places⁸³ and titles, which grow to be more vast than the original writings, whence the sum was at first extracted. So we see the volumes of the schoolmen⁸⁴ are greater much than the first writings of the fathers,⁸⁵ whence the Master of the Sentences made his sum or collection. So in like manner the volumes of the modern doctors

Sacraments of the Church, with their nature, conditions, and effects : the final resurrection and consummation of all things. For this analysis I am indebted to an article on *Thomas Aquinas and the Vatican*, in the *Quarterly Review* for July.

⁸⁰ *Jacob's well*, a well near the city of Sychar, in Samaria, which suggested to Christ the metaphor referred to in n. 87.

⁸⁰ *Kind*, manner. *Useth to be*, cp. 'use to have,' p. 28, l. 4.

⁸¹ *To corrupt*, i.e. to be corrupt. With this passage, cp. pp. 48—9, § 7.

⁸² Sanskrit grammars are a good illustration of Bacon's remark. The original text of Panini's grammar contains about 1,000 shlokas ; a commentary consisting of about 24,000 shlokas is necessary to explain it.

⁸³ *Common places*, discussions. For instance, Thomas Aquinas wrote a large work entitled '*Disputed Questions*', being a collection of academical discussions on various difficult questions in philosophy, theology, and metaphysics. *Titles*, treatises, such, for instance, as the *Commentary of Thomas Aquinas on the Book of the Sentences*, a synopsis of theology by Peter Lombard.

⁸⁴ *The schoolmen*, p. 39, n. 48.

⁸⁵ *The fathers*, p. 72, n. 42. The *Master of the Sentences*, Peter Lombard. See n. 93. Mr. Ellis remarks that in the middle ages it was the custom to

of the civil law⁹⁶ exceed those of the ancient jurisconsults, of which Tribonian compiled the digest. So as this course of sums and commentaries is that which doth infallibly make the body of sciences more immense in quantity, and more base in substance.

12. And for strength, it is true that knowledges reduced into exact methods⁹⁷ have a show of strength, in that each part seemeth to support and sustain the other; but this is more satisfactory⁹⁸ than substantial: like unto buildings which stand by architecture and compaction, which are more subject to ruin than those that are built more strong in their several parts, though less compacted. But it is plain that the more you recede from your grounds, the weaker do you conclude⁹⁹: and as in nature, the more you remove yourself from particulars, the greater peril of error you do incur: so much more in divinity, the more you recede from the scriptures by inferences and consequences, the more weak and dilute¹ are your positions.

13. And as for perfection or completeness in divinity, it is not to be sought; which makes this course of artificial divinity the more suspect.² For he that will reduce a knowledge into an art, will make it round and uniform³: but in divinity many things must be left abrupt,⁴ and concluded with this: *O the depth of the wisdom and*

give names to theological writers, based upon their works. Thus, Aquinas is called the Angelic Doctor, John Scotus the Subtle Doctor, &c.

⁹⁶ *The civil law*, p. 385, n. 14. Tribonian, a Roman magistrate, was commissioned to make a digest of the law, A.D. 530.

⁹⁷ *Methods*, p. 58, n. 61. On p. 46, § 6, Bacon said that the strength of sciences, is 'in the bond.' Here he says that self-consistency alone is not a sign of truth. If a science, as a whole, is not based upon facts, the mere consistency of the parts cannot be a proof of agreement with facts.

⁹⁸ *Satisfactory*, specious; cp. p. 237, n. 26.

⁹⁹ *The weaker do you conclude*, the less trustworthy are your inferences.

¹ *Dilute*, cp. 'watery,' p. 40, n. 55.

² *Artificial*, i.e. exhibiting theology in the form of an art or science. *Suspect*, p. 113, n. 63.

³ *Round and uniform*, i.e. equally complete in all its parts.

⁴ *Abrupt*, literally, 'broken off,' i.e. unfinished, incomplete. The quotations which follow are from *Romans xi. 33*, and from *1 Corinth. xiii. 9*. Bacon in this is alluding to the attempts made by the schoolmen, notably by Thomas Aquinas, to exhibit theology as a complete science. Bacon says quite truly that all attempts to exhibit theology as a formal science must fail. The terms used in any sacred books represent the attempts of the human intellect to grasp the supernatural: and no formal analysis of these terms can increase knowledge,

knowledge of God! How incomprehensible are his judgements, and his ways past finding out. So again the apostle saith, *We know in part*: and⁵ to have the form of a total, where there is but matter for a part, cannot be without supplies by supposition and presumption. And therefore I conclude, that the true use of these sums and methods hath place in institutions⁶ or introductions preparatory unto knowledge: but in them, or by deducement from them, to handle the main body and substance of a knowledge, is in all sciences prejudicial, and in divinity dangerous.

14. As to the interpretation of the scriptures solute and at large, there have been divers kinds introduced and devised; some of them rather curious and unsafe than sober and warranted. Notwithstanding, thus much must be confessed, that the scriptures, being given by inspiration and not by human reason, do differ from all other books in the author: which by consequence⁷ doth draw on some difference to be used by the expositor. For the inditer⁸ of them did know four things which no man attains to know; which are, the mysteries of the kingdom of glory,⁹ the perfection of the laws of nature, the secrets of the heart of man, and the future succession of all ages. For as to the first it is said, *He that presseth into the light, shall be oppressed of the glory.* And again, *No man shall see my face and live.* To the second, *When he prepared the heavens I was present, when by law and compass he inclosed the deep.* To the third, *Neither was it needful that any should bear witness to him of man, for he knew well what was in man.* And to the last, *From the beginning are known to the Lord all his works.*

because the terms themselves do not represent any definite realities; cp. Hooker's *Ecclesiastical Polity*, I. II., 5.

⁵ If a man exhibits a complete science, when there are only materials for an incomplete one, he must have supplied the deficiency by hypothesis.

⁶ *Institutions*, training or preparation. A summary of the contents of a science may be useful to one who is preparing to study a science; but if a man rests content with the summary, instead of studying the science, his opinions will be erroneous, and erroneous opinion, or heresy, in the matter of religion, is dangerous, for salvation depends on right belief. See p. 396, n. 80

⁷ *By consequence*, we should now say 'in consequence.'

⁸ *The inditer*, the author, viz. God.

⁹ *The kingdom of glory*, heaven. For the quotations which follow, see *Exod. xxxiii. 20*; *Prov. viii. 7*; *John ii. 25*; and *Acts xv. 18*.

15. From the former two¹⁰ of these have been drawn certain senses and expositions of scriptures, which had need be contained within the bounds of sobriety; the one anagogical,¹¹ and the other philosophical. But as to the former, man is not to prevent¹² his time: *Now we see through a glass darkly, but then face to face*: wherein¹³ nevertheless there seemeth to be a liberty granted, as far forth as the polishing of this glass,¹⁴ or some moderate explication of this enigma. But to press too far into it, cannot but cause a dissolution and overthrow of the spirit of man. For in the body there are three degrees of that we receive into it, aliment, medicine, and poison: whereof aliment is that which the nature of man can perfectly alter and overcome; medicine is that which is partly converted by nature, and partly converteth nature; and poison is that which worketh wholly upon nature, without that, that¹⁵ nature can in any part work upon it. So in the mind, whatsoever knowledge reason cannot at all work upon and convert is a mere intoxication, and endangereth a dissolution of the mind and understanding.

¹⁰ *The former two*, viz., the intimations in the Bible concerning the mysteries of heaven and the laws of nature.

¹¹ *Anagogical*, mystical. This method aims at acquiring a full insight into the mysteries of heaven, concerning which only vague intimations are given in the Bible; cp. 'The object of the Scholastic philosophy was to detect and draw forth from the Scripture, by aid of the subtle analysis of the philosophy of Aristotle, the mystical truths of God on which the Scripture Revelation was supposed to be founded. The Scripture itself, addressing us in the language of our natural knowledge, conveys to us the principles of the divine science by analogies, which at once intimate the truth, and veil it from human apprehension. Philosophy applied to the Scripture dispels those shadows with which the truth, as now seen, is overcast; removes the veil which now intercepts our view; withdraws our attention from the mere symbols and signs, and brings ultimately before the mind the mysterious yet more real verities of the divine knowledge.'—Hampden's *Bampton Lectures. Philosophical*, i.e. which attempts to educe a system of natural philosophy from the Bible. See i. 16.

¹² *To prevent*, to anticipate, p. 271, n. 33.

¹³ *Wherein*, i.e. in the matter of explaining the intimations of Scripture concerning the mysteries of heaven.

¹⁴ *The polishing of this glass*, i.e. making the mysterious declarations of Scripture more plain. The metaphor, of course, is suggested by the quotation which precedes.

¹⁵ *Without that, that, &c.*, i.e. without its being possible that nature should in any way, &c. The mind is only weakened and bewildered by attempting to solve questions which it is not competent to solve.

16. But for the latter,¹⁶ it hath been extremely set on foot of late time by the school of Paracelsus,¹⁷ and some others, that have pretended to find the truth of all natural philosophy in the scriptures ; scandalizing and traducing¹⁸ all other philosophy as heathenish and profane. But there is no such enmity between God's word and his works ; neither do they give honour to the scriptures, as they suppose, but much imbase¹⁹ them. For to seek heaven and earth in the word of God, whereof it is said, *Heaven and earth shall pass, but my word shall not pass*, is to seek temporary things amongst eternal : and as to seek divinity in philosophy is to seek the living amongst the dead, so to seek philosophy in divinity is to seek the dead amongst the living : neither are the pots or lavers, whose place was in the outward part of the temple, to be sought in the holiest place of all, where the ark²⁰ of the testimony was seated. And again, the scope or purpose of the spirit of God is not to express matters of nature in the scriptures, otherwise than in passage,²¹ and for application to man's capacity and to matters moral or divine. And it is a true rule, *What a man says incidentally about matters which are not in question has little authority*. For²² it were a strange conclusion, if a man should use a similitude for ornament or illustration sake, borrowed from nature or history according to vulgar conceit, as of a basilisk, an unicorn, a centaur, a Briareus, an hydra, or the like, that therefore he must needs be thought to affirm the matter thereof positively to be true. To conclude therefore these two interpretations, the one by reduction or ænigmatical, the other philosophical or

¹⁶ *The latter, i.e. the philosophical method of interpretation.*

¹⁷ See p. 157, l. 15, sq., and my notes there, and p. 206, n. 26. Paracelsus contended that the key to the explanation of nature was to be found in the Bible.

¹⁸ *Traducing*, p. 27, n. 49.

¹⁹ *Imbase*, p. 365, n. 84. The quotation which follows is from *Mark* xiii. 31.

²⁰ *The ark*, p. 139, n. 54—55. The ark containing the book of the covenant between God and his people was kept in the holiest place in the temple ; the vessels required for religious ceremonies were kept in the outer room of the temple. Just as one would not look for the common vessels in the holiest part of the temple, so one must not look for any secular knowledge in the Holy Scriptures.

²¹ *In passage*, p. 110, n. 35.

²² See p. 121, n. 27. *Briareus* was a hundred-handed giant, who assisted Jove against the giants.

physical, which have been received and pursued in imitation of the rabbins and cabalists,²³ are to be confined with a *Be not overwise but fear.*

17. But the two latter points,²⁴ known to God and unknown to man, touching the secrets of the heart and the successions of time, doth make a just and sound difference between the manner of the exposition of the scriptures and all other books. For it is an excellent observation which hath been made upon the answers of our Saviour Christ to many of the questions which were propounded to him, how that they are impertinent²⁵ to the state of the question demanded; the reason whereof is because not being like man, which²⁶ knows man's thoughts by his words, but knowing man's thoughts immediately, he never answered their words, but their thoughts. Much in the like manner it is with the scriptures, which being written to the thoughts of men, and to the succession of all ages, with a foresight of all heresies, contradictions, differing estates²⁷ of the church, yea and particularly of the elect, are not to be interpreted only according to the latitude of the

²³ *The rabbins and cabalists*, 'In the class of traditional theology, or what might be called complemental revelation, we must place the Jewish Cabbala: This consisted in a very specific and complex system, concerning the nature of the Supreme Being, the emanation of various orders of spirits in successive links from his essence, their properties and characters. It is evidently one modification of the oriental philosophy, borrowing little from the Scriptures, at least through any natural interpretation of them, and the offspring of the Alexandrian Jews, not far from the beginning of the Christian era. They referred it to a tradition from Esdras, or some other eminent person, on whom they fixed as the depository of an esoteric theology communicated by divine authority. The Cabbala was received by the Jewish doctors after the fall of their state.....it revived again in the eleventh and twelfth centuries. It was not till about the middle of the fifteenth century that the Jews came into contact with the Christians in theological speculation; and then a fantastic philosophy was compounded out of this Jewish orientalism.—Hallam's Literary History, Vol. I., Pt I., ch. 3. For rabbins, see p. 28, n. 54.

²⁴ *The two latter points*, see p. 400, l. 16, sq.

²⁵ *Impertinent*, p. 118, n. 96.

²⁶ *Which*, who.

²⁷ *Estates*, conditions, both of the Church as a whole, and also of the individual elect. *Elect*, literally chosen, i.e. faithful Christians. The word frequently occurs in theological writings to signify those who are 'chosen' by God to be saved.

proper sense of the place, and respectively towards²⁸ that present occasion whereupon the words were uttered, or in precise congruity or contexture with the words before or after, or in contemplation of the principal scope of the place ; but have in themselves, not only totally or collectively, but distributively, in clauses and words, infinite springs and streams of doctrine to water²⁹ the church in every part. And therefore as the literal sense is, as it were, the main stream or river ; so the moral sense chiefly, and sometimes the allegorical or typical, are they whereof the church hath most use³⁰ : not that I wish men to be bold in allegories, or indulgent or light in allusions ; but that I do much condemn that interpretation of the scripture which is only after the manner as men use³¹ to interpret a profane book.

18. In this part touching the exposition of the scriptures, I can report no deficiency ; but by way of remembrance this I will add. In perusing books of divinity, I find many books of controversies, and many of common places and treatises,³² a mass of positive divinity, as it is made an art³³ : a number of sermons and lectures, and many prolix commentaries upon the scriptures, with harmonies and concordances. But that form of writing in divinity which in my judgement is of all others most rich and precious, is positive divinity, collected

²⁸ *Respectively towards*, with reference to. *Present, actual.*

²⁹ *To water*, cp. p. 397, n. 87. In the *De Aug.* he says that life and strength may be drawn from the Scriptures, not only for the Church as a whole, but also for the souls of individual Christians. See n. 27. The student will have noticed what large use Bacon has made of moral and allegorical interpretations of Scripture in this book.

³⁰ *Use, advantage.*

³¹ *The manner as men use*, the manner in which men are accustomed. Bacon's caution against the misuse of allegorical interpretation is a very necessary one. The Scriptures may be made to support any views, if we are allowed to interpret them allegorically. The only fruitful way of studying any sacred book is to read it by the light of the times in which it was written, and of the ideas of those times. Bacon, of course, did not mean this. To him, and, indeed, to many people now, the Bible is a book *sui generis*, resting, from beginning to end, on divine authority. The age of critical theology is only just beginning.

³² *Common places and treatises*, cp. p. 398, n. 93. By *treatises* he means treatises on special points in theology.

³³ *Positive divinity, as it is made an art*, i.e. the scholastic theology which he has just been criticising.

upon²⁴ particular texts of scriptures in brief observations ; ~~not dilated~~
 into commonplaces, not chasing after controversies, not reduced
 method of art²⁵ ; a thing abounding in sermons, which will vanish, but
 defective in books which will remain, and a thing wherein this age
 excelleth. For I am persuaded, and I may speak it with a *without
 wishing to offend*, and no ways in derogation of antiquity, but as in
 a good emulation between the vine and the olive,²⁶ that if the choice
 and best of those observations upon texts of scriptures, which have
 been made dispersedly in sermons within this your
Emanations of the scriptures into position doctrines. Majesty's island of Brittany by the space of these forty
 years and more (leaving out the largeness of exhortations and applications thereupon) had been set down
 in a continuance,²⁷ it had been the best work in divinity which had
 been written since the Apostles' times.

19. The matter informed²⁸ by divinity is of two kinds ; matter of belief and truth of opinion, and matter of service and adoration ; which is also judged and directed by the former : the one being as the internal soul of religion, and the other as the external body thereof. And therefore the heathen religion was not only a worship of idols, but the whole religion was an idol in itself ; for it had no soul, that is, no certainty of belief or confession : as²⁹ a man may well think considering the chief doctors of their church were the poets : and the reason was, because the heathen gods were no jealous gods,³⁰ but were glad to be admitted into part, as they had reason. Neither did they respect the pureness of heart, so³¹ they mought have external honour and rites.

²⁴ Collected upon, &c., i.e. as he explains in the *De Aug.* a brief and judicious collection of notes and observations on particular texts of Scripture.

²⁵ Method of art, i.e. a formal art. A thing abounding, &c., i.e. that of which I am regretting the absence, does, indeed, exist in sermons ; but sermons are short-lived. I wish to see it fixed in books, which are permanent.

²⁶ The vine and the olive, emblems of peace.

²⁷ In a continuance, continuously, or in a series.

²⁸ Informed, i.e. about which we are informed or instructed.

²⁹ Cp. 148, n. 23, and p. 391, n. 52.

³⁰ Jealous gods, God is called in the Bible a jealous God, because he will not allow men to worship any one but himself.

³¹ So, provided that.

20. But out of these two do result and issue four main branches of divinity ; faith, manners,⁴² liturgy, and government. Faith containeth the doctrine of the nature of God, of the attributes of God, and of the works of God. The nature of God consisteth of three persons⁴³ in unity of Godhead. The attributes of God are either common to the Deity,⁴⁴ or respective to the persons. The works of God summary⁴⁵ are two, that of the creation and that of the redemption ; and both these works, as in total they appertain to the unity of the Godhead,⁴⁶ so in their parts they refer to the three persons : that⁴⁷ of the creation in the mass of the matter, to the Father ; in the disposition of the form, to the Son ; and in the continuance and conservation of the being, to the Holy Spirit. So⁴⁸ that of the redemption, in the election and counsel, to the Father ; in the whole act and consummation, to the Son ; and in the application, to the Holy Spirit ; for⁴⁹ by the Holy Ghost was Christ conceived in flesh, and by the Holy Ghost are the elect⁵⁰ regenerate in spirit. This work likewise we consider either effectually,⁵¹ in the elect ; or

⁴² *Faith, manners, &c., i.e.* the creed of the Church, the law of duty, as defined by the Bible, the form of worship, and the form of Church government.

⁴³ *Three persons, &c.,* referring to the Christian doctrine of the Trinity. There are three persons, Father, Son and Spirit, but yet the three are one God.

⁴⁴ *The Deity, i.e.* to God, as consisting of the three persons. *Respective,* peculiar.

⁴⁵ *Summary, most important. The redemption,* p. 390, n. 37.

⁴⁶ *The unity of the Godhead, see n. 44.*

⁴⁷ God created matter: the Son arranged it: the Spirit preserves it; cp. p. 65, § 2.

⁴⁸ God the Father chose the redemption, as the means of effecting a reconciliation between himself and fallen man. God the Son consummated the redemption, by being born as a man and put to death. God the Holy Ghost applies the redemption, for it is by the continued influence of the Holy Spirit that men are kept from falling into sin.

⁴⁹ When Christ was born as a man, (in flesh) he was not begotten by a human father, but 'was conceived by the Holy Ghost, and born of the Virgin Mary.'

⁵⁰ *The elect,* p. 403, n. 27. *Regenerate in spirit, born again in mind and character.* See p. 393, n. 66.

⁵¹ *Effectually, i.e.* as effecting the object which it was intended to effect. The object of the sacrifice was to reconcile God to man. This object, of course, is effected in the case of those whom God has 'chosen' to be saved.

privately,⁵² in the reprobate; or according to appearance,⁵³ in the visible church.

21. For⁵⁴ manners, the doctrine thereof is contained in the law which discloseth sin. The law itself is divided, according to the edition⁵⁵ thereof, into the law of nature, the law moral, and the law

⁵² Privately, i.e. privatively, or as failing to accomplish its object. The *reprobate* are the sinful, whom God has 'rejected.'

⁵³ According to appearance, as it manifests itself. The Christian Church is based on the life and actions of Christ, and is a visible sign of men's belief in the efficacy of the sacrifice of Christ.

⁵⁴ For, as for. *Manners*, p. 406, n. 42. Which discloseth sin, which tells us what sin is. The expression is borrowed from the Bible.

⁵⁵ The edition, the source : literally, the delivery. *The law of nature*, This is defined by Hooker thus—"The law of nature comprehendeth all those things which men by the light of their natural understanding evidently know, or at leastwise may know, to be seeming or unbeseeming, virtuous or vicious, good or evil for them to do"; or again—"The law of reason or human nature is that which men by discourse of natural reason have rightly found out themselves to be all for ever bound unto in their actions;" and again, "There are certain self-evident principles of conduct which being proposed, the mind doth immediately embrace them as free from all possibility of error, clear and manifest without proof, for instance, that the greater good is to be chosen before the less: that God is to be worshipped: that parents are to be honoured." Of this *law of nature*, Hooker says, "It is such that being proposed no man can reject it as being unreasonable and unjust. There is nothing in it but any man (having natural perfection of wit and ripeness of judgment) may by labour and travail find out." *The law moral*, the revealed law of God, which has been given us to supplement our imperfect moral intuitions—"to inform the duty," and not merely "to check the vice," see p. 391. Cp. Hooker, "The law of reason (i.e. of nature), doth somewhat direct men how to honour God as their creator; but how to glorify God in such sort as is required, to the end he may be an everlasting saviour, this we are taught by divine law, which law both ascertaineth the truth and supplieth unto us the want (i.e. the defects) of that other law. So that in moral actions, divine law helpeth exceedingly the law of reason (or nature) to guide man's life; but in supernatural it alone guideth." *The law positive*, the term *positive* is properly opposed to *natural*; the nearest English equivalent is *conventional*. Hooker uses it in this sense, borrowing it from Greek philosophy. He defines positive laws as laws 'which do not depend on any natural ground out of which they may be deduced,' i.e. 'which cannot be known by nature.' Bacon means by *the law positive*, laws which order us to do that which by the law of nature and the law moral we are not ordered to do. The difference may be briefly expressed thus—The law positive makes a thing right by ordering it; the law of nature and the law moral order a thing because it is right. Cp. Hooker, "The generality is natural, virtue rewardable and vice punishable; the particular

positive; and according to the style, into negative and affirmative, prohibitions and commandments. Sin in the matter and subject thereof is divided according to the commandments⁶⁶; in the form thereof, it referreth to the three persons in Deity: sins of infirmity against the Father, whose more special attribute is power; sins of ignorance against the Son, whose attribute is wisdom; and sins of malice against the Holy Ghost, whose attribute is grace or love. In the motions of it, it either moveth to the right hand or to the left⁶⁷; either to blind devotion, or to profane and libertine transgression; either in imposing restraint where God granteth liberty, or in taking liberty where God imposeth restraint. In the degrees and progress of it, it divideth itself into thought, word, or act. And in this part I commend much the deducing of the law of God to cases of conscience⁶⁸; for that I take indeed to be a breaking, and not

determination of the reward or punishment belongeth unto them by whom laws are made. Theft is naturally punishable, but the kind of punishment is positive, and such lawful as men shall think with discretion convenient by law to appoint." As an instance of a law positive in divinity we may take the Jewish law of rites and ceremonies. The student will of course see that many of the laws of every state are positive. Bacon, however, is not considering *human* laws. He is talking of theology, and refers only to the *positive* laws and ordinances contained in the Bible. It should be noticed that 'the law of nature' and the law moral overlap. The revealed law of God contains many laws of nature: but, says Hooker, there is a reason for this. "For the laws of nature contained in Scripture are either such as we of ourselves could not easily have found out, and then the benefit is not small to have them readily set down to our hands or, be they plain of themselves or obscure, the evidence of God's own testimony added to the natural assent of reason concerning the certainty of them, doth not a little comfort (strengthen) and confirm the same."

⁶⁶ *The commandments*, i.e. the commandments given in the Bible. *For the three persons in Deity*, see p. 406, n. 43. It is a curious argument that a man who sins through weakness, offends especially against the strong person of the Trinity. We may suppose Bacon to mean that a man may by prayer obtain from the three persons of the Trinity the attributes of power, wisdom, and love, and that, therefore, he is culpable if he does not possess them.

⁶⁷ *To the right hand or to the left*, i.e. in the direction of religion or away from it.

⁶⁸ *Cases of conscience*, i.e. cases in which we find it difficult to determine whether an action is right or wrong. These cases form the subject-matter of morality. See p. 319, n. 77. Bacon means to say that the law of God must be developed and applied, so as to form a complete guide for conduct.

exhibiting whole of the bread of life.⁵⁹ But that which quickeneth⁶⁰ both these doctrines of faith and manners, is the elevation and consent of the heart; whereunto appertain books of exhortation, holy meditation, Christian resolution, and the like.

22. For the liturgy or service, it consisteth of the reciprocal acts between God and man; which, on the part of God, are the preaching of the word, and the sacraments, which are seals to the covenant,⁶¹ or as the visible word; and on the part of man, invocation of the name of God; and under the law,⁶² sacrifices; which were as visible prayers or confessions: but⁶³ now the adoration being *in spirit and in truth*, there remaineth only *calves of the lips*; although the use of holy vows of thankfulness and retribution⁶⁴ may be accounted also as sealed petitions.

23. And for the government of the church, it consisteth of the patrimony of the church, the franchises⁶⁵ of the church, and the

⁵⁹ *The bread of life*, the word of God. For a similar metaphor, cp. p. 397, n. 87.

⁶⁰ *Quickeneth*, giveth life to; cp. p. 20, n. 99. *Faith and manners*, doctrine and morality. Bacon means to say that mere belief is useless without feeling. See p. 98, n. 52

⁶¹ *Seals to the covenant*, for the expression, cp. p. 304, n. 66. By the Christian Sacraments of Baptism and the Holy Communion Gods sets his seal to the compact which he has made with men, that he will save and bless them if they are righteous. *The visible word*, i.e. an outward ratification of the promises contained in the word, i.e. the Scriptures. Cp. *The Articles of the English Church*, 25 and 27. "Sacraments ordained of Christ be certain sure witnesses and *effectual signs* of God's good will towards us"; and "by baptism the promises of the forgiveness of sins, and of our adoption to be the sons of God, are *visibly signed and sealed*." For the literal meaning of the word *sacrament*, see p. 226, n. 58.

⁶² *The law*, the Jewish law. Sacrifices are called 'visible prayers or confessions,' because the offering of a sacrifice is a visible sign of a man's belief in and adoration of God.

⁶³ Christianity substituted a spiritual and true worship for a ceremonial and figurative one. See p. 68, n. 21. The expression 'the calves of the lips,' i.e. the offering of prayers, instead of animal sacrifices, is taken from the Jewish prophet Hosea xiv. 2.

⁶⁴ *Retribution*, a vow of retribution is a vow to make some return to God for the blessings which we receive from him. *Sealed*, i.e. confirmed or ratified; cp. above, n. 61. Similarly, Hooker says, "The vows we have made unto God are laws which we tie ourselves unto."

⁶⁵ *The franchises*, p. 108, n. 26. Hooker used the words *Ecclesiastical Polity* rather than *Government* as the title of his book, "the rather, because the name

offices and jurisdictions of the church, and the laws of the church directing the whole ; all which have two considerations, the one in themselves, the other how they stand⁶⁶ compatible and agreeable to the civil estate.

24. This matter of divinity is handled either in form of instruction of truth, or in form of confutation of falsehood. The declinations from religion, besides the privative,⁶⁷ which is atheism and the branches thereof, are three ; heresies, idolatry, and witchcraft : heresies, when we serve the true God with a false worship ; idolatry, when we worship false gods, supposing them to be true ; and witchcraft, when we adore false gods, knowing them to be wicked and false. For⁶⁸ so your Majesty doth excellently well observe, that witchcraft is the height of idolatry. And yet we see though these be true degrees, Samuel⁶⁹ teacheth us that they are all of a nature, when then there is once a receding from the word of God ; for so he saith, *Rebellion is as the sin of witchcraft, and stubbornness as the sin of idolatry.*

25. These things I have passed over so briefly because I can report no deficiency concerning them : for I can find no space or ground that lieth vacant and unsown in the matter of divinity : so diligent have men been, either in sowing of good seed, or in sowing of tares.

THUS have I made as it were a small globe of the intellectual world, as truly and faithfully as I could discover ; with⁷⁰ a note and description of those parts which seem to me not constantly occupate, or not well converted by the labour of man. In which, if I have in any point receded from that which is commonly received, it hath been with a purpose of proceeding *to something better*, and not *to something new* ; a mind of amendment and proficience and not

of government, as commonly men understand it in ordinary speech, doth not comprise the largeness of that whereunto in this question it is applied." Government expresses 'the exercise of superiority in rulers' ; *Polity* contains 'both government and also whatsoever besides belongeth to the ordering of the Church in public' . . . 'a form of ordering the public spiritual affairs of the Church of God.'

⁶⁶ *How they stand, &c.*, the student will recollect that the limits of the authority of the sovereign in spiritual and ecclesiastical matters were the subject of dispute in Bacon's time.

⁶⁷ *The privative*, the negation.

⁶⁸ Bacon is referring to the King's treatise on *Daemonology*.

⁶⁹ *Samuel*, see p. 236, n. 15. The reference is to *1 Sam. xv. 23*.

⁷⁰ See pp. 116—8, § 15.

of change and difference. For⁷¹ I could not be true and constant to the argument I handle, if I were not willing to go beyond others ; but yet not more willing than to have others go beyond me again : which may the better appear by this, that I have propounded my opinions naked and unarmed, not seeking to preoccupate⁷² the liberty of men's judgements by confutatons. For in anything which is well set down, I am in good hope, that if the first reading move an objection, the second reading will make an answer. And in those things wherein I have erred, I am sure I have not prejudiced the right by litigious arguments ; which certainly have this contrary effect and operation, that they add authority to error, and destroy the authority of that which is well invented. For question⁷³ is an honour and preferment to falsehood, as on the other side it is a repulse to truth. But the errors I claim and challenge to myself as mine own. The good, if any be, is due as⁷⁴ *the fat of the sacrifice*, to be incensed to the honour, first of the Divine Majesty, and next of your Majesty, to whom on earth I am most bounden.

⁷¹ In the *De Aug.* it is, "I could not be true to myself or my subject if I had not made up my mind to add as much as I could to the discoveries of others ; at the same time, I desire equally that my discoveries should be surpassed by posterity.

⁷² *To preoccupate*, to prejudice. With this passage cp. p. 193, § 4.

⁷³ *Question*, i.e. litigious arguments. Cp. p. 194, § 5. In the *De Aug.* he adds "Meanwhile I am reminded of the sarcastic answer of Themistocles to one who came as an ambassador from a small town, and used big words ; "Friend, (he said) *your words require a city.*" Certainly, I think, it may be very fairly urged against me that my words require an age—a whole age, perhaps, to prove them, and many ages to perfect them. Still, since even the greatest things are due to their beginnings, I am content to have sowed seed for posterity and eternal God ; and I humbly entreat Him, in the name of his Son our Saviour, graciously to accept these and the like offerings of the intellect, which are sprinkled with religion as with salt, and which are offered to His Glory."

⁷⁴ It was specially ordered by the Jewish law that the fat of the victim should be offered in all sacrifices.

THE NEW WORLD OF SCIENCES,

OR

DEFICIENCIES NOTED BY BACON.

THE ADVANCEMENT OF LEARNING.

Bk. ii. *History.* I. 2. A History of letters.
3. A history of extraordinary phenomena in nature.
5. A history of arts.
III. 2. A history of prophecy.

Natural Philosophy. V. 2. A first philosophy.
VII. 5. Metaphysic of forms.
VIII. 3. Magic.
An inventory of human possessions.
A catalogue of experiments.
5. A continuation of natural problems.
A list of popular errors.
The opinions of ancient philosophers.

Human Philosophy. IX. 2. Physiognomy of the body in motion.
X. 4. Medical reports.
5. Comparative anatomy.
6. On the treatment of diseases pronounced incurable.
7. On mitigating the pains of death.
8. A record of medicines found effectual in certain cases.
9. The imitation of natural springs.
10. The physician's clue.

De Augmentis.

A preliminary Natural History for the new method.
A philosophy of the ancient myths.

A sound astronomy and astrology.

A treatise on the ultimate perfections of human nature.
The prolongation of life.

THE ADVANCEMENT OF LEARNING.

*De Augmentis.**Mental and Moral*

Philosophy, XIII. 1-5. The art of invention, experience committed to writing, and the *Novum Organum*.

10. Particular Topics.

XIV. 11. Cautions against idols.

12. The analogy of demonstrations.

XVI. 3. On the notes of things.

4. A philosophical grammar.

XVII. 3. A method of probation.

11. The wisdom of tradition.

XVIII. 5. On prudence in private discourse.

6-9. Collections of colours, antitheta, and formulæ.

XXI. 9. A treatise on the frauds practised in professions.

XXII. 1. The Georgics of the mind.

Political

Philosophy, XXIII. 4. On wisdom in business.

12. On advancement in life.

Theology,

XXV. 6. On the use of reason in theology.

Emanations of the Scriptures.

On the substance of the sensible soul.

On voluntary motion.

On the difference between sense and perception.

Of the form of light.

The means of extending an empire.

The fountains of equity.

Of the degrees of Unity in the Church.